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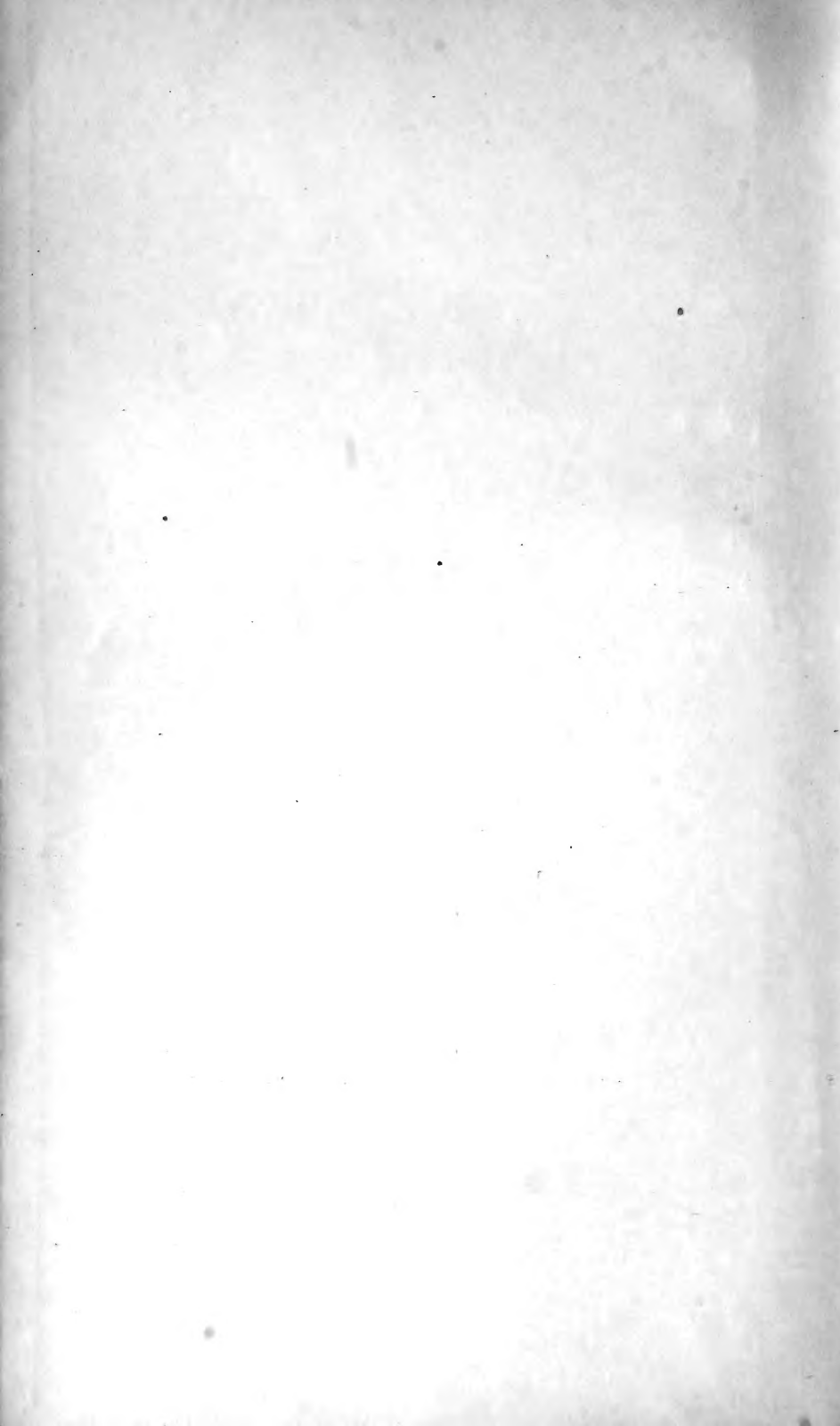
Pt. I. Bull. 172, 1909

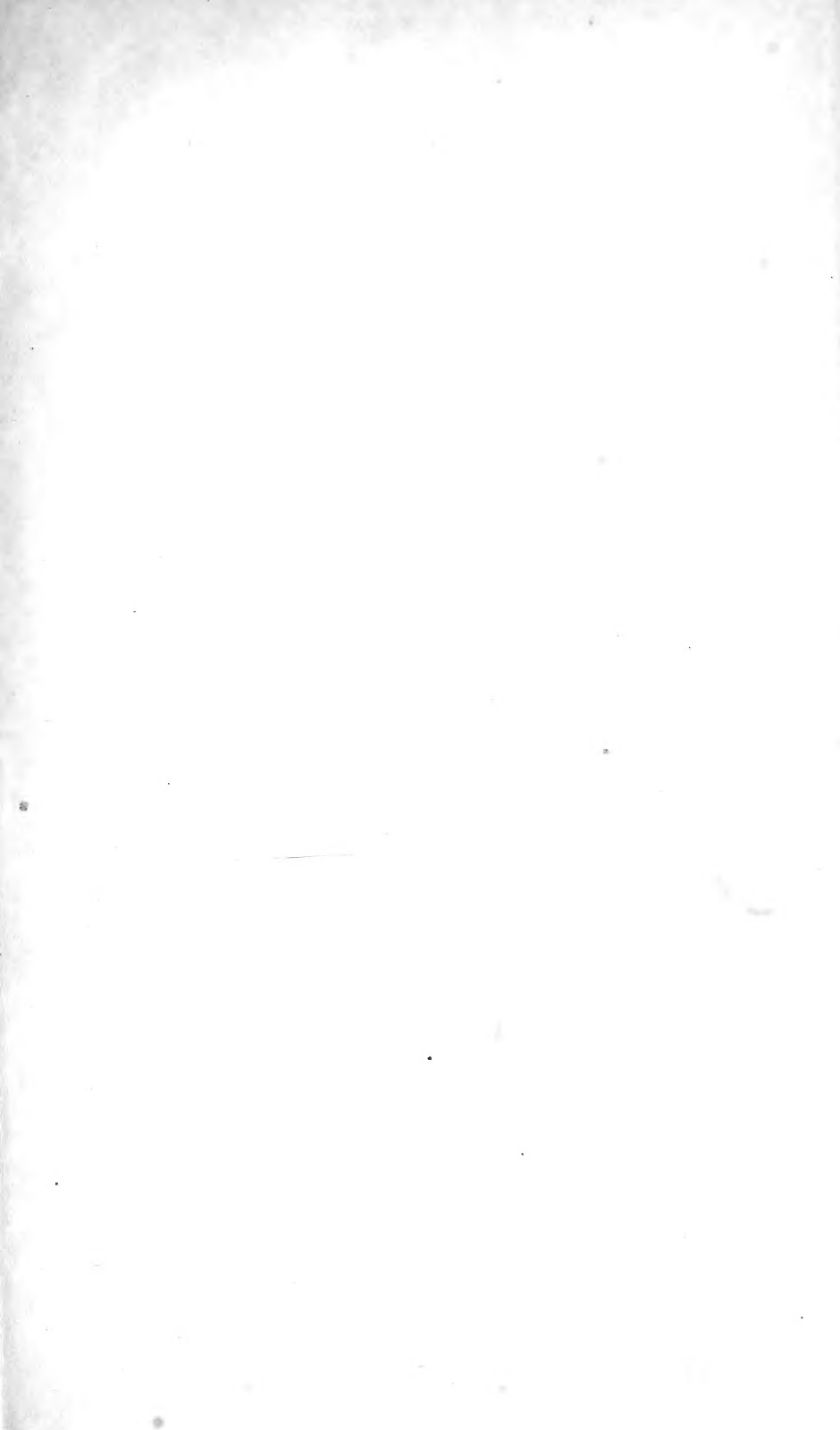
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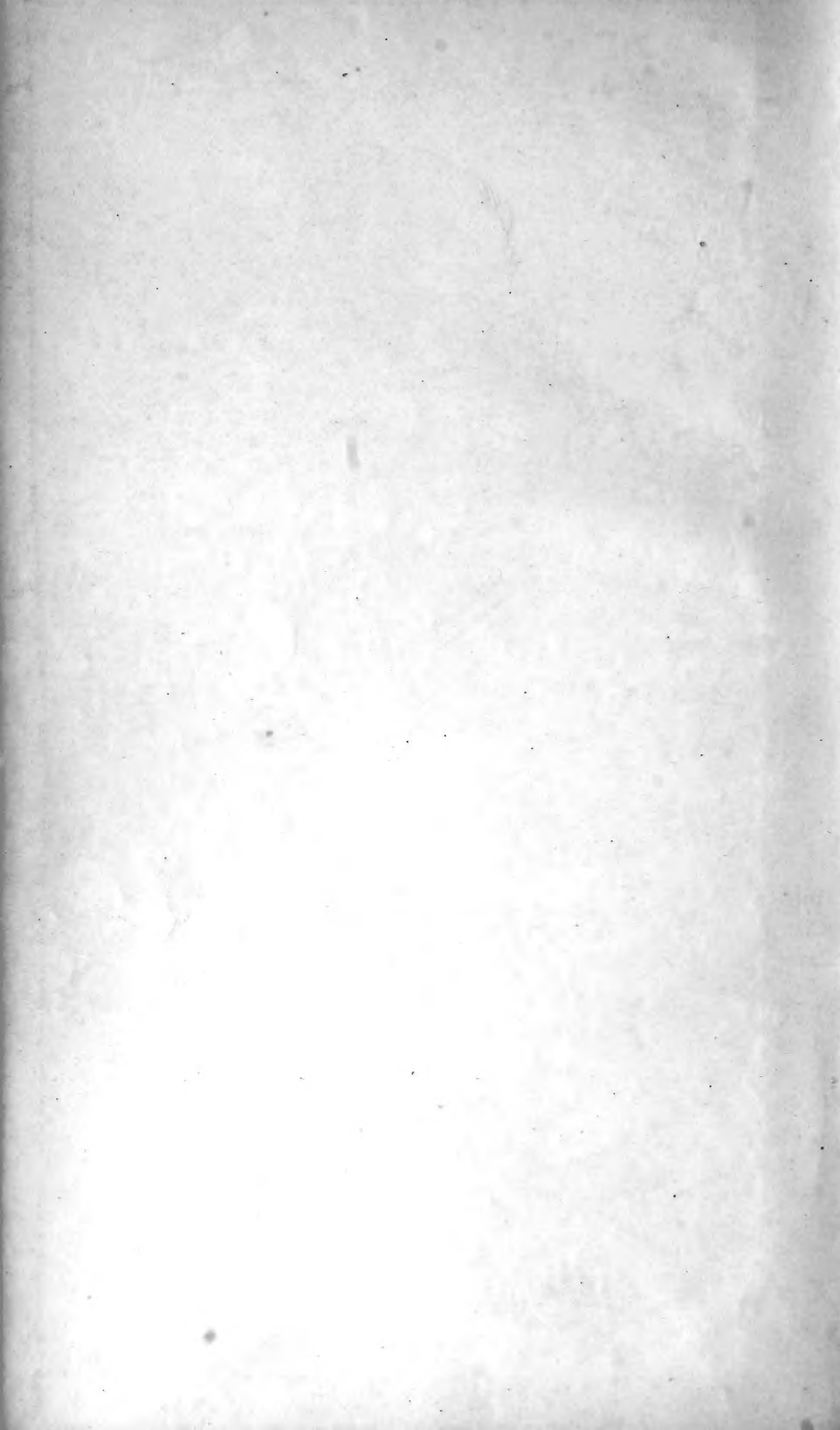
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THE FUNGUS GNATS OF NORTH AMERICA.

Part 1.

mycetophilidae
Johannsen

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BULLETIN No. 172.

THE MYCETOPHILIDÆ OF NORTH AMERICA.

PART I.*

O. A. JOHANNSEN.

It is the purpose of this paper to present a synopsis of the fungus gnats or *Mycetophilidæ* of North America, giving descriptions of and tables to all the genera and species, and life histories when known. As these flies are for the most part quite small, inconspicuous in coloring and retiring in habit, it is not strange that they, with the exception of a few species which have been brought into prominence by reason of their economic importance, have received but scant attention from entomologists generally. In this, the first part, the lower and economically less important subfamilies are treated, while in a subsequent paper the *Sciophilinæ*, *Mycetophilinæ* and the *Sciarinæ* will be considered. I hope to be able to show, in my work on the *Sciarinæ*, just what relation the larvæ of *Sciara* which are so frequently and usually so numerous present in rich soil, bear to the plants which grow there. I also trust that the descriptions of the imagines of the members of this genus will be sufficiently characteristic so that neither the Economic Entomologist nor the Systematist need so often designate a species as *Sciara sp.* as has been the case heretofore.

Acknowledgments.

To the members of the Entomological Staff of Cornell University for their kindness in granting me the freedom of their laboratories, library, and collections I wish to express my

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heartiest thanks. I am also under great obligations to Professors W. M. Wheeler, J. M. Aldrich, John Barlow, and Messrs. Wm. Beutenmueller and C. W. Johnson for the loan of their collections, to Mr. D. W. Coquillett in permitting me to study the specimens in the United States National Museum and to Dr. Samuel Henshaw for the privilege of examining the Loew types in the museum at Cambridge, Mass. I desire also to acknowledge my indebtedness to Miss Edith M. Patch of the Agricultural Experiment Station of Maine, and to Dr. Chas. D. Woods, director of the station, for encouragement and aid in making possible the publication of this paper in its present form.

Of the literature upon the Mycetophilidæ which has been of greatest assistance I need only mention here Winnertz's "Pilzmücken," the "Centuries" of Loew from the Berliner Entomologische Zeitschrift, and the papers of Adams, Aldrich, Coquillett, Dziedzicki, Grzegorzek, Lundström, Marshall, Rübsaamen, Skuse and Williston.

Characters.

The fungus-gnats are flies of medium or small size, and more or less mosquito-like in form. They are exceedingly numerous both in number of individuals and in number of species, over fifteen hundred species contained in upward of one hundred genera, having been described from Europe, North America and Australia. Although entomologists have long been familiar with the earlier stages as well as with the adults of several members of this family, our knowledge of the life history is as yet very meagre. In 1864 Baron C. R. von Osten Sacken collected all the published records bearing upon the biology and the structural characters of the larvæ and published them together with some observations of his own. This paper was reprinted in 1884 with a few additions.

The larva is twelve segmented, footless, more or less cylindrical, slightly tapering, smooth, soft, whitish in color and with a small strongly chitinized head, which is usually brown or black. The antennæ are always very minute, almost vestigial. The mouth parts consist of a fleshy labrum, with a chitinized frame; flat lamelliform mandibles, indented or serrate on the

inner side; maxillæ with inner and outer lobes, the former usually serrate; and a small chitinized labium. The body of the larva is without hair or bristles except that in some genera there are two transverse rows of simple or bifid ambulacral setulæ on the margin of each abdominal segment on the ventral side. There are usually eight pairs of spiracles, which in some of the genera at least, are protected by small chitinized conical projections, the anterior pair being largest.

The pupæ are extricated, that is, not encased in the contracted skin of the larva. The legs are applied to the breast and venter, the antennæ are bent around the eyes, and extend between the wings and legs. The prothoracic spiracle is placed a little above the root of the wing and immediately behind the antenna. The abdominal spiracles are distinct on both sides of the abdomen. The pupa is smooth, white in color and frequently encased in a delicate cocoon. The pupæ of those forms whose larvæ live in mushrooms are usually found in the soil and among the decaying parts of the plant. The larval and usually the pupal life also is of short duration, though the insect may hibernate as a pupa. The time which elapses from the egg to the adult stage may not exceed two weeks in mid-summer.

The imago may be distinguished from other flies by the following characters: Antennæ usually 16 jointed, occasionally 12 to 17 jointed; palpi usually 3 or 4 jointed; ocelli present except in one or two genera. Thorax highly arched, scutellum small, setose. Abdomen with 6 to 9 visible segments, cylindrical, conical or oval and laterally compressed; the male with complex hypopygium, the female with a short ovipositor with 2 terminal lamellæ. In the male the seventh and eighth segments are usually very small. The coxæ are very strong and excepting in the *Sciarinæ* and a few of the lower genera, are much elongated; the femora are more or less thickened, laterally compressed, often setose; the tibiæ usually slender, spurred, and setose; tarsal claws with teeth. The wings are usually oval, hairy or microscopically setulose, and without the cell 1st M_2 (discal cell). The wing venation is quite varied though it may readily be reduced to four types. The first and most primitive is that of *Palæoplasyura* (fig. 70); in the second, *Ceroplatina*, *Macrocerina*, *Ditomyia* (fig. 71) the basal section

of the media is lost; in the third, *Sciophilinae* (fig. 72) the M-Cu cross vein is wanting and R_2+3 is crossvein-like in appearance; while in the fourth, *Mycetophilinae* (fig. 73) and *Sciarinae*, both the M-Cu crossvein and the vein R_2+3 have disappeared either by coalescence or atrophy.

Below is given the Comstock-Needham terminology of wing venation which is used in the following text, together with the equivalent terms of the Schinerian system.

	Costa (C) = Costa.
Subcosta (Sc)	$\left\{ \begin{array}{l} Sc_1 \dots \dots \dots = \text{Subcostal or auxiliary vein.} \\ Sc_2 \dots \dots \dots = \text{Subcostal crossvein.} \end{array} \right.$
Radius	$\left\{ \begin{array}{l} \dots \dots \dots R_1 = \text{First longitudinal vein.} \\ \text{Radial sector} \left\{ \begin{array}{l} R_2+3 = \text{Anterior branch of third vein.} \\ R_4+5 = \text{Posterior branch of third vein.} \end{array} \right. \end{array} \right.$
	Media (M) = Fourth longitudinal vein.
	Cubitus (Cu) = Fifth longitudinal vein.
	Anal veins (A) = Anal and axillary veins.

Crossveins

Subcostal (Sc_2) = Subcostal.
Radio-medial (R-M) = Anterior crossvein.
Medio-cubital (M-Cu) = Posterior crossvein.

In this system each cell is given the name of the section of the vein immediately in front of it; thus the cell behind the costa is called the costal cell (or C); the cell behind the basal section of the radius is called R, that behind R_1 is called R_1 , etc. In the case of *Sciophilinae* where R_2+3 is transverse in position, the small cell is called R_1 and the outer cell is R_2+3 . Some writers, Winnertz among others, have erroneously considered the base of the radial sector as a crossvein, while they called the true crossvein the base of the third longitudinal vein (R_4+5).

In the past the characters most used for generic classification have been derived from the wing venation while color characters have been most used in describing species. In the

future more attention should be paid to the structure of the palpi and antennæ, position of ocelli, arrangement of setæ on thorax and legs, relative wing and leg measurements, claws in some cases, and especially to the hypopygium of the male, for both generic and specific characters. The descriptive works of Dziedzicki, Lundström and Rübсаamen, are particularly excellent in regard to the last. For a proper study of the members of the *Mycetophilidæ* it is absolutely necessary to make a caustic potash preparation of the hypopygium. It is impossible from a pinned specimen to determine the form of the parts, owing to the fact that they are usually more or less retracted. I have found Lundström's method of preparation simpler than that of Dziedzicki. In this method it is merely necessary to relax the insect, cut off with a pair of scissors the apical segments of the abdomen; immerse in a 10 per cent solution of caustic potash for twenty-four or more hours, soak in water to remove the potash, and finally preserve in alcohol in a tiny vial bearing the number of the specimen. Besides its simplicity this method offers a further advantage in that the abdominal segment which still is attached to the hypopygium offers a hold for the needles in manipulating and arranging the part under the binocular dissecting microscope. Slide mounts alone are not desirable since it is necessary to be able to turn the object in order to see it from all sides.

The general shape of the hypopygium is that of a cup opening posteriorly, the cavity of which is the genital chamber. This cup, which is formed of the sclerites of the ninth segment, is so produced that its margin usually extends beyond the tenth segment which morphologically terminates the abdomen. The tenth segment bears the anus and is usually reduced to a small membranous lobe. Attached to the posterior rim of the hypopygium are several lobe-like appendages which are variously formed or modified. The body of the segment is made up of a dorsal, ventral and two lateral sclerites. From the floor of the genital chamber arises the penis with its variously modified guards. Although several hundred preparations have been made, owing to the complexity of structure I am not yet certain of the homologies of the parts of some of the genera and pending this investigation I must be content in the descriptive work which follows to confine myself to noncommittal

terms in the designation of the various appendages. Following Dziedzicki and Lundström I shall call the upper and lower lateral appendages respectively the upper and lower forceps; when the homology seems evident I shall use the terms eighth and ninth tergum and sternum as given by Snodgrass ('04), otherwise shall speak of these appendages as the dorsal and ventral sclerites. Sometimes when one or the other of the lateral appendages are wanting or greatly reduced the remaining pair will be simply designated as the forceps. When there are appendages of sternum and tergum which require designation they will be called respectively sternal and tergal processes or lobes.

Habits and Economic Relations.

As far as known most of the members of this family live upon and destroy mushrooms, not only the wild plants but on occasion the cultivated varieties as well. Many a mushroom though apparently sound, will, upon close scrutiny reveal tiny black headed larvæ which within a few days grow to maturity and if numerous completely riddle the plant. If left upon the earth the larvæ when full grown will bury themselves, pupate, and within a short time emerge as adults. While but few references to the higher fungus gnats (*Mycetophilinae*) are found in economic literature, nevertheless I may say from personal observation that a large percentage of the wild mushrooms are infested with the larvæ of *Mycetophilinae*, particularly of the genera *Exechia* and *Mycetophila*, and in several instances have found them in company with the larvæ of *Phora* to utterly ruin a mushroom bed in the cellar of a grower.

The larvæ of *Mycetobia* live upon decaying wood, particularly of the apple or peach tree, though probably without injury to the sound wood. The *Ceroplastinae* and *Sciophilinae* as far as known live upon fungi and decaying wood. As they are comparatively rare they are not likely to be of economic importance. The *Sciarinae* on the other hand are frequently mentioned by economic entomologists. Though often found in decaying mushrooms and in the earth in putrid vegetable matter I have never found them to be injurious to growing fungi. They are frequently present, feeding on potatoes affected by scab or rot, in some apparently well authenticated instances

appear to be the precursor of some form of scab. They are found in apples associated with the railroad worm; in bulbs of tulips, and are occasionally reported by florists as damaging plant roots. Professor Forbes in the 18th report of the State Entomologist of Illinois states that they are frequently noticed in rich garden ground and among potted plants, where they are accused by gardeners of eating the roots and hollowing out the bulbs. He also says "When the spring is cool and wet after corn planting, so that the softened seed lies long in the ground without sprouting, this is especially liable to certain kinds of injury; and it is under these conditions that the black headed maggot (*Sciara sp*) seems most likely to affect it injuriously. Rotting grain is, indeed undoubtedly preferred by this insect, but it has occasionally been seen to infest kernels which had begun to grow. It lives normally in old sod, feeding chiefly, or perhaps altogether, on decaying vegetation there, and will be found in noticeable numbers in corn fields only where the field was in grass the preceding year. These maggots penetrate and hollow out the kernel, often leaving nothing more than an empty hull. A score or more of them may infest a single grain."

Lintner in his 10th report of the State Entomologist of New York says "A species (perhaps more than one) is noted in Europe, for its gregarious and migratory habits. It is there known as the army-worm or *Heerwurm* from its collecting at certain seasons in companies—sometimes consisting of millions—and traveling along in a body of often from 12 to 15 feet in length and 2 or 3 inches broad and perhaps a half inch thick. 'M. Guérin Méneville observed columns as many as thirty yards in length.' The species has not been positively determined, but it is accepted as either *Sciara Thomsæ* (Linn.) or *S. militaris* Now.—but probably the latter, according to the statement of Baron Osten Sacken. Similar gatherings have been observed in this country, one of which is narrated in *Insect Life*, iv, 1891, page 214; two others recorded by Glover in the *Report of the Commissioner of Agriculture* for 1872, p. 115, as observed in Virginia (figures of the larva and fly are given); and two others by Prof. F. M. Webster, in *Science* for February 23, 1894, p. 109. With us they bear the name of 'snake-

worms,' from the snake-like appearance and movements of some of the processions."

Nothing further need here be said concerning habits as it is proposed to discuss more fully the details of life history and of injury caused by any given form under the respective species.

Remedial Measures.

As a remedy against those species which feed upon the cultivated mushrooms Lintner in his 10th report suggests occasional applications of pure and fresh pyrethrum in water, using it of the strength of one ounce to 4 to 8 gallons of water, as the larvæ may be deeper beneath or nearer to the surface of the beds. As a preventive measure the cellars may be closely screened and the beds covered with small mesh screen frames. For those which are associated with scab or rot the measures taken in combatting these will also hold in check the ravages which may be occasioned by the insect. The remedies and preventive measures applied for the railroad worm or apple maggot and the codling moth will also control the apple midge.

TABLE OF SUBFAMILIES.

- a. Medio-cubital crossvein (M-Cu) present; i. e., a vein connecting the media with the cubitus (figs. 70, 71), or these veins contiguous for a short distance at the place where the crossvein usually is.
- b. The radio-medial crossvein (R-M) distinct, not obliterated by the coalescence of a portion of radius and media.
- c. Radius with more than 2 branches, anterior branch of the radial sector sometimes short and crossvein like.
- d. The M-Cu crossvein far proximad of the R-M crossvein, the cell M less or but little more than half as long as cell R. (figs. 74-76). i. Sub-fam. *Bolitophilinæ*. *pt 7*
- dd. The R-M and the M-Cu crossvein nearly equidistant from the base of the wing, usually only one basal cell.
- e. The radius with 4 branches (European).
Sub-fam. *Pachyneurinæ*.

- ee. The radius with but 3 branches (figs. 77-81), 2. Sub-fam. *✓ Mycetobiinæ*. *PT. I. 231, E*
- cc. The radius with but 2 branches (fig. 91). 3. Sub-fam. *Diadocidinæ*. *PT. I. 231, E*
- bb. The radio-medial crossvein (R-M) obliterated by the coalescence of a section of the basal portion of the radius and media at the point where the crossvein usually is. (Figs. 82-90).
- c. Antennæ short, usually thick set and often flattened. (Figs. 82-89). 4. Sub-fam. *✓ Ceroplatinæ*. *PT. I. 239, E*
- cc. Antennæ very slender, and nearly as long and often much longer than the body (fig. 90). 5. Sub-fam. *✓ Macrocerinæ*. *PT. I. 244, E*
- aa. The medio-cubital crossvein (M-Cu) absent.
- b. The anterior branch (R_2+3) of the radial sector distinct, short, ending in R_1 and appearing like a supernumerary crossvein bounding distally the small rectangular or trapezoidal cell R_1 (fig. 72). 6. Sub-fam. *Sciophilinæ*. *PT. I. 245, E*
- bb. R_2+3 not distinct from R_1+2 , the cell R_1 thus open to the margin of the wing.
- c. Coxæ much elongated, (fig. 56), the R-M crossvein usually distinctly angulated from the second section of the radial sector; the cubitus usually forks noticeably distad of the base of the wing (fig. 73). 7. Sub-fam. *✓ Mycetophilinæ*. *PT. III. 249, E*
- cc. Coxæ not greatly elongated; the R-M crossvein in the same right line with the second section of the radial sector; the cubitus forked near the base of the wing. 8. Sub-fam. *Sciarinæ*. *PT. IV*

I. Subfamily BOLITOPHILINÆ.

Bolitophilinæ Winnertz, Verh. Zool-bot. Ges. Wien, XIII, 657. 1863.

Long slender species, with abdomen having 7 to 9 visible segments, 12 to 17 jointed antennæ, coxæ either long or short; wings long and rather narrow; radius 3 branched, both the

basal cells R and M distinct and closed at the distal end by the crossveins or by the coalescence of the basal section of the media and cubitus; the cell M much shorter than the cell R.

Table of genera.

- a. R_2+3 shorter than the distance of its base from the crossvein and shorter than R_2+5 .
- b. Antennæ 17 jointed, slender (figs. 75, 76).
 - 1. *Bolitophila*.
- bb. Antennæ 12 jointed (fig. 74).
 - 2. *Hesperinus*.
- aa. R_2+3 much longer than the distance of its base from the R-M crossvein (fig. 79). Fossil genus.
 - 3. *Mycetophætus*.

1. Genus *Bolitophila* Meigen. $\underline{E} \downarrow$

Bolitophila Meigen, Syst. Besch. Zweifl. I. 220. 1818.

Messala Curtis, Brit. Ent. 581. 1836.

Head hemispherical; 3 ocelli arranged in a curved line on the broad front; palpi 4 jointed; antennæ filiform, in the male nearly as long as the body, of the female shorter, $2+15$ jointed. Thorax small, highly arched. Abdomen slender, of the male with 8, of the female with 9 visible segments. Legs slender, tibial spurs short and weak. Venation as figured (figs. 75, 76).

Table of species.

- a. Anterior branch of the cubitus disconnected at the base (fig. 76).
 - 1. *disjuncta*
- aa. Anterior branch of cubitus connected at the base.
 - b. R_2+3 ends in R_1 (fig. 75).
 - 2. *cinerea*.
 - bb. R_2+3 ends in the costa.
 - c. The subcosta ends at or distad of the base of the radial sector in the male.
 - 3. *hybrida*.
 - cc. The subcosta ends noticeably proximad of the base of the radial sector.
 - 4. *montana*.

1. *Bolitophila disjuncta* Loew.

1869. *disjuncta* Loew. Besch. europ. Dipt. I. 19. 17.

Male. Length 6 mm. Head cinereous, proboscis brownish, palpi yellowish; antennæ about as long as the insect, fuscous,

scape and base of the flagellum yellow. Mesonotum with 3 broad cinereous stripes; the humeri, space between the stripes, yellow. Pleura, sternum and metanotum brownish. Abdomen wholly fuscous. Coxæ and legs yellow, tibiæ and tarsi slightly infuscated, fore metatarsus about .9 as long as its tibia, claws minute, apparently simple, pulvilli plumose, empodium like a stag's horn. Wings (fig. 76) hyaline, distinct brownish stigma at apex of R_1 , subcosta ends in the costa less than the length of the R-M crossvein before the base of the radial sector, R_2+3 ends in the costa slightly distad of the tip of R_1 , base of Cu wanting, veins yellowish. Length of wing is 6 millimeters which is twice as long as the fore tibia. Halteres yellow, knob brown. Several specimens collected by Prof Aldrich, Juliaetta, Idaho. The specimen in the Loew collection at Cambridge is from New Hampshire.

2. *Bolitophila cinerea* Meigen. ✓

1818. *cinerea* Meigen, Syst. Besch. I. 221.

Male and female. Length 4 to 6 mm. Antennæ fuscous, yellowish at the base, shorter than the body; palpi yellow. Thorax light brown, grayish pollinose, mesonotum subfuscous with yellowish humeri, sometimes with indications of 3 longitudinal stripes; scutellum brown; abdomen brown. Coxæ and femora yellow, the latter and the tibiæ sometimes subfuscous, tarsi brown, fore metatarsus is .85 times as long as its tibia. Wing (fig. 75) cinereous tinged, with brown veins and pale subobsolescent stigma, subcosta ends distad of the base of the radial sector, R_2+3 ends in R_1 , the M-Cu crossvein present, though short and stout. Length of wing is as long as the body which is about 1.75 times as long as the fore tibia. Halteres with brown knob.

Several specimens. Ithaca, N. Y. May and September.

3. *Bolitophila hybrida* Meigen.

1804. *hybrida* Meigen, Klass I. 47.

1818. *fusca* Meigen, Syst. Besch. I. 221.

Male and female. Length 4 to 6 mm. Palpi pale, face, front and vertex brown, antennæ brown, yellow at the base. Thorax pale brown, dorsum pale brown, or more yellowish

with 3 brown stripes. Scutellum yellowish. Coxæ and legs yellowish, tibiæ and tarsi more or less brown; tibiæ and tarsi of hind legs subequal in length. Wing cinereous tinged, veins and stigma brown; sometimes with indistinct spot just distad of the R-M crossvein; the subcosta ends in the costa distad of the base of the radial sector, at least in the male; the M-Cu crossvein present, though short and stout. Halteres with brown knob. White Mts., N. H. (det. Coquillett) and Mayfield Cave, Ind. (det. Adams). Selkirk Mts., B. C.; collected by J. C. Bradley.

4. *Bolitophila montana* Coquillett.

1901. *montana*. Coquillett, Proc. U. S. Nat. Museum, XXIII. 593.

Female. Length 4.5 mm. Dark brown, the base of the third antennal joint, peduncle of the halteres, coxæ, femora and tibiæ light yellow, sides of mesonotum largely brownish yellow, mesonotum polished; wings hyaline, stigma elongate oval, gray; subcosta reaches only slightly beyond middle between humeral crossvein and base of the radial sector, R_2+3 terminates in the costa, the media at its base coalescing for a short distance with the upper branch of the cubitus. Mount Washington, N. H.

Male specimen from Ithaca, New York, taken in September has the antennæ over 3-4 as long as the body, and the fore metatarsus .9 as long as its tibia, which is half as long as the wing. It differs from the female in having a shining black mesonotum and dark brown pleura, and also in the length of the subcosta which ends somewhat distad of the point midway between the subcostal crossvein (not humeral crossvein) and the base of the radial sector.

2. Genus *Hesperinus* Walker.

Hesperinus Walker, List Dipt. Brit. Mus. I, 81. 1848.

Spodius Loew, Berl. Ent. Zeitschr. II. 108. 1858.

Rather large, bare, blackish species resembling *Bolitophila* in habitus. Head small, round, palpi incurved, 4 segmented; antennæ 12 jointed; eyes round, ocelli 3. Abdomen slender, with 7 or 8 visible segments. Legs long and slender, coxæ not

elongate; femora somewhat thickened distally; tibiæ with small spurs; metatarsi lengthened, claws small, pulvilli and empodium distinct. Wings large and broad; Sc₁ long, extending beyond the middle of the wing; R₂+₃ shorter than the distance of its base from the R-M crossvein, the media rises at the base of the wing, the fork of the cubitus and the M-Cu crossvein equidistant from the base of the wing and far proximal of the R-M crossvein (fig. 74).

Hesperinus brevifrons Walker.

1848. *brevifrons* Walker. List. Dipt. Brit. Mus. I. 81.

Female. Length 6 mm. Wholly fuscous, legs, halteres, and center of tergum of each abdominal segment paler than thorax. Front broad, with 3 large ocelli arranged in a triangle, the middle ocellus most cephalad; palpi 4 jointed, the first and second but little longer than broad, the third more slender, about 4 times as long as broad, the fourth slightly longer than the third, each joint with 10 to 15 stout black setæ as well as with very minute setulæ which are arranged in transverse rows; antennæ 12 jointed, the first and second broader than long, the third about 3 times as long as broad, the remaining 9 joints about as broad as long and only slightly diminishing in size apically, with few short setæ. Antennæ if bent back would scarcely reach scutellum. Thorax with indications of 3 broad cinereous stripes, almost bare. Abdomen with 9 visible segments, nearly bare, ovipositor with 2 slender oval lamellæ. Legs long but rather stout, tibial spurs very short, inconspicuous and depressed. Fore metatarsus about .4 the length of the tibia, tarsal claws apparently simple, empodium pad-like, pulvilli conspicuous. Wings cinereous hyaline, veins pale fuscous, except M-Cu crossvein which is paler, stigma faintly indicated; venation as figured (fig. 74); subcostal crossvein present, anal vein slender, rather faint but prolonged to the wing margin. Length of wing 6 mm. which is 2 2-3 times the fore tibia in length. Mt. Greylock, Mass. June. C. W. Johnson, collector. The species has been recorded from Alaska, Canada, Colorado, and White Mountains, New Hampshire.

The specimen in the U. S. National Museum determined as this species as I recollect seeing it, is the same as the one

described above. In habitus it reminds one far more of the Bibionid genus *Plecia* than it does *Bolitophila*, from which it differs mainly in having 12 antennal joints and but 4 palpal joints. I believe it should be placed with the Bibionidæ.

3. Genus *Mycetophætus* Scudder.

Mycetophætus Scudder. Bul. U. S. Geol. Survey 93. 19. 1892.

This fossil genus appears to be closely akin to *Hesperinus*, differing mainly in having a much longer R_2+3 . Venation as figured (fig. 79). Legs long and slender, the fore femora considerably longer than the thorax, the tibia longer than the femora, both abundantly spinose. Abdomen 8 segmented. The only species is *M. intermedius* Scudder, from Florissant, Colorado.

2. Subfamily MYCETOBIIINÆ. E

Mycetobiina Winnertz. Verh. zool.-bot. Ges. Wien. XIII. 666. 1863.

A group possessing in common the following characters; 16 or 17 jointed antennæ; 3 ocelli on the vertex; wings rather broad, both the R-M and the M-Cu crossvein present and nearly equidistant from the base of the wing; radius 3 branched; legs long and slender and the tibial spurs rather short.

Table of genera.

- a. Subcostal vein (Sc_1) long, reaching at least 1-4 the length of the wing and usually ending in the costa.
 - b. R_2+3 and R_4+5 both arise at the R-M crossvein. (Fig. 77). *Mesochorus* - p. 321 - III 1. ✓ *Mycetobia*.
 - bb. R_2+3 and R_4+5 separate distad of the crossvein. (Fig. 78). 2. *Palæoplatyura*.
- aa. Subcostal vein (Sc_1) vestigial.
 - b. The media forks distad of the base of R_2+3 . (Fig. 80). 3. *Ditomyia*.
 - bb. The media forks proximad of the base of R_2+3 . (Fig. 81). 4. ✓ *Symmerus*.

1. Genus *Mycetobia* Meigen.*Mycetobia* Meigen, Syst. Besch. I. 229. 27. 1818.

Head spherical, flattened in front, 3 ocelli arranged in a triangle on the front, the anterior one smaller; palpi 4 segmented; antennæ 2+15 jointed, almost annular, the apical joint very small. Abdomen with 7 plainly visible segments. Tibiæ with short and slender spurs, lateral setæ of middle and hind tibiæ small. Wing broad (fig 77); subcosta about 1-3 as long as the wing, subcostal crossvein wanting; R_2+3 arises at the R-M crossvein, R_2+3 ends near the tip of the wing, the costa is prolonged a little beyond it, the media arises apparently at the M-Cu crossvein, though there is usually an indication of the true basal section of this vein in the form of a fold-like vein bisecting the basal cell; the cubitus forks slightly proximad of M-Cu crossvein, anal vein ends in the margin of the wing.

Mycetobia divergens Walker.1856. *divergens* Walker. Insecta Saundersiana, Dipt. I. 418.1867. *persicæ* Riley, Prairie Farmer 15 June. vol. 35. n. s., V. 19, p. 397 (*Mycetophila*).1869. *sordida* Packard, Guide to study of Insects. 388.1903. *marginalis* Adams, Kansas Univ. Science Bulletin II.

2. 21.

Male and female. Length 3 to 4 mm. Head black, subshining, tip of palpi yellow; antennæ black including the basal joints. Mesonotum black, shining, humeri, lateral and posterior margins, and scutellum with a reddish tinge, pile yellow, pleura and metanotum black, mostly shining. Abdomen variable, shining, basal segments usually more or less yellow, apical segments blackish, pile yellow. Legs yellow, tarsi infuscated at the tip, fore metatarsus 2-3 as long as its fore tibia. Wings hyaline, subcosta ends in the costa proximad of the base of R_2+3 ; venation as figured (fig. 77). Length of wing 3 to 4 mm. which is 3 1-3 times as long as the fore tibia. Halteres yellowish. Ithaca, N. Y.; Boulder, Col. (T. D. A. Cockerell, collector); Gardiner, Maine.

In my specimens there is considerable variation in the amount of color on the abdomen, in other respects they appear identical. This variation has led me to believe that the synonymy given above is correct.

Larva. Slender, legless, resembling the larva of an aquatic Ceratopogon, 12 segmented. Head yellowish brown, oblong, about twice as long as wide; labrum with rounded margin, setose ventrally; mandibles when extended, reach cephalad of margin of labrum, brown in color, apical half oval, margined with a number of blunt teeth, mesal margin also with toothed hook produced cephalad, maxilla fleshy, its palpus short, papillate; hypopharynx setose; labium with brown margin, and with 2 pointed teeth on lateral cephalic margin; a few scattered setæ on head; 2 eye spots. Body hyaline, whitish, the 2 main tracheal trunks open on the center of the lateral margin of the first thoracic segment and extend to the apex of the twelfth abdominal segment; they are connected by a strong commissure at the cephalic end of the second thoracic segment. At the posterior end the spiracles are surrounded by a fringe of setæ which project out at right angles to the axis of the body. Length of full grown larva about 7 mm.

Pupa. Brown; tapering, with a few caudad projecting spines from the thorax and each of the abdominal segments. Length 4 mm.

Habit. This species has been reported a number of times by fruit growers as causing injury to the roots of apple and peach trees. It has been found to occur in the rotting wood of these trees but it is extremely doubtful if it is able to cause injury to the sound wood. Both Riley and Walsh as well as Glover have recorded it and all are agreed as to the inoffensive character of this insect. The specimens upon which the above descriptions were drawn, were sent to me by Mr. Gardiner, of Gardiner, Maine.

2. Genus *Palæoplatyura* Meunier.

Palæoplatyura Meunier, Miscell. Entomol. VII. 164. 1899.

Head depressed, front broad, ocelli 3 in number remote from eye margin, palpi 4 jointed; antennæ 2+14 jointed, about as long as head and thorax taken together. Thorax arched, setæ not prominent; abdomen of the male with 7 visible segments; hypopygium small, consisting of a pair of 2 jointed forceps, the basal joint stout, the terminal joint curved, about 4 times as long as broad, the apex toothed and densely ciliated on the inner side. Legs slender, tibial spurs about 1.5 times as long

as the diameter of the femur at the widest part; tarsal claws toothed, empodium prominent. Wings (fig. 78) broad, longer than the abdomen; costa produced beyond the tip of R_{1+2} , almost reaching the tip of the wing; subcosta less than 1-3 the length of the wing, ending in the costa a little beyond the point where the radial sector begins; subcostal crossvein present or absent; R_1 ends about 2-3 the length of the wing, R_{2+3} about as long as basal section of the radial sector and ends a little beyond the tip of R_1 , the R-M crossvein stout and very short, the media arises near the base of the wing and is represented by a delicate fold-like vein to the crossvein, beyond which it is strong, and forks about half way from the crossvein to the base of R_{2+3} ; cubitus forks slightly proximad of the M-Cu crossvein; second anal vein may be produced to margin or may be abbreviated. Contains recent as well as fossil forms.

Table of species.

- a. Wing immaculate; subcostal crossvein absent, anal vein not reaching margin of the wing. 1. *aldrichii*.
- aa. Wing with markings; subcostal crossvein present, anal vein reaches margin of wing. (fig. 78) 2. *johnsoni* n. sp.

1. *Palæoplatyura aldrichii* Johannsen.

1909. *aldrichii* Johannsen, Genera Insectorum, Mycetophilidæ. 10.

Male. Length 4 mm. Head, face and antennæ fuscous, basal joint of the last and palpi yellow; ocelli arranged in a triangle. Thorax pale brownish, including pleura, sternum and scutellum, the mesonotum with 3 confluent darker stripes, metanotum dark brown, humeri and supra-pleural stripe yellow; black setæ arranged in 5 longitudinal lines, 3 on the mesonotum and 2 on the lateral margin; scutellar setæ fine and numerous, but little longer than those on the humeri. Abdomen brown, darker apically, with black setulæ; hypopygium as described for the genus. Coxæ and legs pale yellow, tarsi infuscated, fore metatarsus about .7 as long as its tibia; spurs yellow. Wings hyaline, with a very faint smoky tinge, heavier veins brown, slender veins more yellowish; subcostal crossvein wanting, anal vein stout but not reaching margin of the wing. Halteres yellow.

One specimen from Professor Aldrich. Friday Harbor, Wash. This species differs in several important structural characters from the following, though for the present they will be left in the same genus.

2. *Palæoplathyura johnsoni* n. sp.

Male. Length 5 mm. Head subshining black; ocelli in a transverse line set low on the front, the median one smaller than the laterals. Face fuscous, oval margin produced and covered with erect black setæ; labellæ and palpi yellow, both of medium size, the latter with 4 joints of which the first and second are subequal, the third about thrice, the fourth 4 times as long as the first, all with a few black setæ, those of the fourth small and inconspicuous; the scape yellow, the basal joints of the flagellum yellowish, the remaining joints fuscous; first flagellar joint about twice as long as wide, the other joints but little longer than their width; whole antenna if bent back would scarcely reach the metanotum. Mesonotum shining yellow with 3 brown stripes, the middle one widest, setæ black, sparse, not arranged in longitudinal rows; scutellum yellow, without prominent setæ; metanotum and pleura except at base of the wing, brown. Abdomen brown, the apical margin of the segments, except of the first, yellow; setæ black. Posterior end and hypopygium crushed in the single specimen, hence cannot be described. Coxæ and legs yellow, tarsi more dusky, fore metatarsus slightly longer than its tibia, setæ of middle and hind tibiæ small and inconspicuous, shorter than the diameter of the tibia; one spur on fore tibia, 2 subequal ones on each of middle and hind tibiæ; empodium consists of a few short setæ, the claws each with 2 short, stout, straight teeth proximad of the middle. Wings (fig. 78) grayish hyaline with markings as follows: an oval brown spot covering the R—M crossvein and extending distad to beyond the fork of the media with a tiny hyaline spot in it just distad of the crossvein; a small brown spot at costal margin and filling the space between R_2+3 and apex of R_1 ; an elongate spot covering the apical end of Cu_2 and faintly merging into the posterior end of the subapical brown band which arises on the costa between the extremities of the branches of the radial sector and extends posteriorly more

faintly over the branches of the media and beyond the anterior branch of the cubitus where it nearly or quite reaches the wing margin; subcosta ends in the costa well beyond base of the radial sector, the subcostal crossvein is situated half way between the humeral crossvein and the base of the radial sector; R_2+3 arises before the apex of R_1 but ends well beyond its tip; the costa is produced well beyond the tip of R_2+3 but does not reach the tip of the wing; the anal vein is produced to the wing margin; the apical end of the first section of the radial sector and of the media hyaline white, the remainder of the veins brown, the heavier veins darkest. Length of wing 6 mm. One specimen from Burlington, Vt. taken in June by Mr. C. W. Johnson.

3. Genus *Ditomyia* Winnertz. E

Ditomyia Winnertz, Stett. Ent. Zeit, VII, 14. 3. 1846.

Head spherical, flattened in front; 3 ocelli, unequal, in a transverse line; palpi 4 jointed; antennæ 2+15 jointed, the last very small, papilliform. Abdomen with 7 visible segments. Legs long and slender, tibiæ with short spurs. Wings (fig. 80) large, hairy, subcostal vein short, incomplete; R_2+3 arises proximad of the fork of the media; media arises apparently at the R—M crossvein, the basal section having been wholly obliterated; cubitus forks slightly proximad of the M—Cu crossvein; anal vein prolonged to the margin.

Ditomyia euzona Loew.

1869. *euzona* Loew, Berl. Ent. Zeitschr. XIII. 1.

Male. Length 6 mm. Head, scape, and base of first flagellar joint yellowish, flagellum and palpi blackish. Thorax yellow, dorsum with dusky vittæ; scutellum except the base, fuscous. Abdomen yellow, each segment with a black posterior fascia which is dilated in the middle and on the lateral margins, hypopygium dusky. Coxæ and legs yellowish. Wings hyaline, grayish tinged, with the following fuscous fasciæ; the first near the base of the wing extends from the costa into the basal cell R, the second extends across the wing from near the apex of the subcostal cell to the posterior branch of the cubitus; the third widely covers the apex of the wing. Length of wing 6.2 mm. Halteres yellow.

The type, from the District of Columbia, is now in the museum at Cambridge, Mass. Another specimen of this beautiful species is in the United States National Museum.

4. Genus *Symmerus* Walker. E ✓

Symmerus Walker, List Dipt. Brit. Mus. I. 88. 1848.

Plesiastina Winnertz, Stett. Ent. Zeit. XIII. 55. 4. 1852.

Head, antennæ, palpi, abdomen and legs as with *Ditomyia*. Eyes somewhat approximated on the vertex, ocelli 3 in number. Fore tibiæ on inner side with several slender setæ, the hind pairs as with *Ditomyia*. Wing venation (fig. 81) as with *Ditomyia* but differs primarily in having a shorter R_2+3 , the base of which is somewhat distad of the fork of the media, and the costa ends at the tip of R_4+5 .

Table of species.

- a. Thorax shining fuscous black; abdomen and halteres mainly black, the basal half of peduncle of the latter, yellow; length 5 mm. Eastern states. 1. *tristis*.
- aa. Thorax and usually halteres also, mainly yellow.
 - b. Wings distinctly fasciate.
 - c. Wing with a single slender fascia across the cross-veins; abdomen black, segments with yellow posterior margins; length 12 mm. Mexico. 2. *lenis* n. n.
 - cc. Wing with two transverse fascia.
 - d. Thorax with 3 shining black stripes; legs mainly yellow, hind femora, tip of hind tibiæ, hind tarsi and tip of middle tibia, black, $6\frac{1}{2}$ -7 mm. Mexico. 3. *bifasciata*.
 - dd. Thorax yellow, reddish in the middle; legs pale, tarsi fuscous; length 10 mm. Mexico. 4. *mexicana*.
- bb. Wings not distinctly fasciate.
 - c. Thorax shining yellow, abdomen yellow, segments with wide, black posterior margins; length $7-7\frac{1}{2}$ mm. Eastern States. 5. *annulata*.
 - cc. Thorax yellow with blackish median fascia; dorsum of abdomen black, the segments with pale margins; length 4.5-6 mm. New York. 6. *lauta*.

1. *Symmerus tristis* Loew.

1869. *tristis* Loew, Berl. Ent. Zeitschr. XIII. 131. 2.
(Plesiastina).

Female. Length 4.5 to 5 mm. Head fuscous black, vertex and flagellum of the antenna more purely black. Thorax shining fuscous black, pleura and metanotum a little paler. Abdomen blackish, with black pile, the apical segment and appendages yellowish. Legs and coxæ fuscous, trochanters and the knees pale. Wings (fig. 81) smoky, the petiole of the media shorter than its anterior branch. Halteres black, stem yellow at base. D. C. (Osten Sacken); Massachusetts (W. M. Wheeler, col.).

2. *Symmerus lenis* n. n. (not *zonata* Stephens).

1890. *zonata* Giglio-Tos, Boll. Mus. Anat. comp. Torino. V.
No. 84. (Ditomyia).

Male. Length about 12 mm. Face, front and palpi pale yellow; eyes black, pubescent; 3 ocelli arranged in a transverse row upon a black spot; antennæ yellow, longer than the head and thorax combined, the 6 apical joints black. Thorax yellow, with yellow pile, with 3 vittæ confluent posteriorly; pectus and metathorax black; scutellum yellow. Abdomen black, pilose, the first segment wholly and posterior margins of the others yellow. Legs yellow, hind femora fuscous at the base; the tips of tibiæ and tarsi blackish. Wing slender, longer than the abdomen, with a slender subfuscous transverse fascia which extends from R_1 across the crossvein nearly to the posterior margin of the wing following here the course of Cu_2 . Halteres yellow.

Female. Smaller; antennæ wholly testaceous, shorter. Abdomen sparsely pilose. Recorded from Orizaba, Mexico, by Giglio-Tos.

3. *Symmerus bifasciata* Williston.

1900. *bifasciata* Williston, Biol. Centr.-Amer. I. 217.
(Plesiastina).

Male. Length $6\frac{1}{2}$ -7 mm. Head yellow, the ocelli on small blackish spots; antennæ longer than the head and thorax together, light yellow, the last seven joints black, the flagellum flattened. Mesonotum light yellow, with three broad shining

black stripes, the lateral ones abbreviated in front. Scutellum yellow, with the margin brownish. Pleura in part pitchy brown. Metanotum light yellow above, brown on the lower part. Abdomen: first segment and the venter light yellow; second to seventh segments, inclusive, shining black, with the hind margin yellow or yellowish, and clothed with yellow hair; remainder of abdomen black, with less abundant yellow hair; hypopygium yellow, with the superior organs blackish. Legs yellow; 4 posterior coxæ brownish; hind femora, tip of the hind tibiæ, the hind tarsi, and the tip of the middle tibiæ black; middle tarsi brownish; front tibiæ with weaker bristles; all the tibiæ with spurs, the hind pair with long and stout ones. Wings light yellow, with brown markings as follows: the whole of the costal cell, except sometimes a spot at the beginning of the yellow distally, the broad distal and narrow posterior margin, and a moderately broad band near the middle of the wing; the subcostal vein vanishes in a fold that ends about opposite the beginning of the radial sector; the radial sector forks before its middle, the media a little beyond the middle of the petiole of the radial sector; the costal vein ends at the tip of R_4+5 . Mexico, Sierra de las Aguas Escondidas in Guerrero, 7000 feet.

4. *Symmerus mexicana* Giglio-Tos.

1890. *mexicana* Giglio-Tos, Boll. Mus. Zool. Anat. Comp. Torino. V. No. 84. (Ditomyia).

Male. Length 10 mm. Face and front yellow; eyes black, 3 ocelli, distant, placed in a right line upon a black spot; antennæ yellow, subfuscous toward the tip, longer than the head and thorax conjointly. Thorax yellow, reddish upon the center of the mesonotum. Abdomen black, with yellow pile, subclavate posteriorly, the whole of the first, and the posterior margins of the second and third, yellowish. Legs yellow, tarsi fuscous, each tibia with fuscous apex. Wings yellow, sparsely tomentose; longer than the abdomen, with 2 fuscous fasciæ, the first filling the basal half of the costal cell and extending across the disk of wing between the crossveins and the base of the fork of the media; the second broadly covers the apex of the wing. Halteres yellow. Recorded by Giglio-Tos from Orizaba, Mexico.

5. *Symmerus annulata* Meigen. ✓

1830. *annulata* Meigen, Syst. Besch. VI. 294. 3.
(Plesiastina).

Male and female. Length 7 to $7\frac{1}{2}$ mm. Palpi and face yellow; front and vertex fuscous; antennæ brown, the scape and sometimes the basal flagellar joints yellow. Thorax and abdomen yellow, shining, the latter somewhat compressed, with posterior half or two-thirds of each segment fuscous. Coxæ and legs yellow, tarsi infuscated; fore tibia only slightly longer than the fore metatarsus; all femora ciliated beneath. Wings grayish hyaline, costal cell more ferruginous; veins brown; subcosta a mere tooth. Recorded from New Jersey and New Hampshire.

6. *Symmerus lauta* Loew.

1869. *lautæ* Loew, Berl. Ent. Zeitschr. XIII. 132. 3.
(Plesiastina).

Male. Length $4\frac{1}{2}$ to 6 mm. Pale yellow. Flagellum of antenna fuscous black; vertex in large part black. Mesonotum shining with 3 black vittæ, the median vitta paler anteriorly and divided by pale line; pleura immaculate. Tergum of each abdominal sclerite blackish with pale anterior and posterior margins, venter wholly pale yellow; hypopygium brownish, stout, superior forceps black, shorter than the inferior forceps. Legs pale yellow, tibial spurs black, tarsi infuscated. Wing tinted with cinereous; petiole of the media and M_2 subequal. Halteres yellow; knob infuscated. Recorded from N. Y. A defective specimen from Ithaca, N. Y., bears the date August 24.

3. Subfamily DIADOCIDIINÆ. E

Diadocidina. Winnertz. Verh. Zool.-bot. Ges. Wien. XIII.
656. 1863.

This subfamily is distinguished from all others in having the M-Cu crossvein present and at the same time only 2 branches of the radius.

Genus *Diadocidia* Ruthe. E

Diadocidia Ruthe, Isis. II. 1210. 1831.

Macroneura, Macquart, Suites à Buffon I. 146. 1834.

Head rounded, flattened in front; ocelli, 3, subequal, in a triangle on the front; palpi 4 jointed; antennæ 2+15 jointed, the apical joint papilliform. Thorax ovate, arched. Abdomen with 7 visible segments. Legs slender, femora somewhat thickened; hind tibiæ with 3 rows of delicate setæ. Wings (fig. 91) hairy, large, with wide base; subcostal vein, long and ends in the costa; subcostal crossvein (Sc_2) present or absent; R_1 ending in the costa distad of the mid length of the wing; the radial sector unbranched and ending in the costa before its tip; second anal produced to the wing margin.

Table of species.

- a. Recent species.
 - b. Subcostal crossvein wanting; apex of R_1 far proximad of tip of Cu_1 . Eastern States. 1. *ferruginosa*.
 - bb. Subcostal crossvein present; apex of R_1 opposite the tip of Cu_1 . B. C. 2. *borealis*.
- aa. Fossil species. Colorado. *terricola*.

1. *Diadocidia ferruginosa* Meigen.

- 1830. *ferruginosa* Meigen, Syst. Besch. VI. 294. 4. (Mycetobia)
- 1831. *flavicans* Ruthe, Isis, II, 1211 (Diadocidia).
- 1834. *Winthemi* Macquart, Suites à Buffon. I. 147. 34. (Macroneura).

Male and female. Length 3 mm. Front, vertex, face and antennæ brown, base of the last and proboscis and palpi yellow. Thorax yellow, with 3 subcoalescent brown stripes, wanting in immature specimens; scutellum yellow; metanotum brown. Abdomen sordidly yellowish, darker apically. Legs yellow, tarsi infuscated; fore metatarsus nearly 2-3 as long as its tibia, hind tibia longer than the tarsus. Wing (Fig. 91) tinged with gray, with pale brown veins and gray setulæ; subcostal crossvein wanting. Halteres yellow. Ithaca, N. Y., August 10; Auburndale, Mass., July 16, (C. W. Johnson). Has also been recorded from the White Mountains, New Hampshire.

2. *Diadocidia borealis* Coquillett.1900. *borealis* Coquillett, Proc. Wash. Acad. Sciences. II. 390.

Male. Length 4 mm. Head and antennæ dark brown, two basal joints of the latter, also the proboscis and palpi, yellow; thorax polished, yellow, the dorsum, except the front corners, dark brown; scutellum yellow; metanotum brown; abdomen dark brown, slightly polished, its hairs yellowish; coxæ and femora light yellow, tibiæ and tarsi brown, front tarsi slender; knob of halteres yellowish brown; wings hyaline, densely covered with short hairs, subcostal crossvein present, tip of R_1 about opposite apex of anterior branch of the cubitus. Lowe Inlet. B. C.

4. Subfamily CEROPLATINÆ.

Ceroplata, Winnertz. Verh. Zool.—bot. Ges. Wien. XIII. 684. 1863.

The primary distinction possessed by the members of this subfamily is found in the wing venation. The R—M crossvein is obliterated by the coalescence of a section of the basal portion of the radius and media at the point where the crossvein usually is. The antennæ are short, usually thickened, and often more or less flattened.

Table of Genera.

a. Face and proboscis prolonged, beak-like or snout-like. (figs. 46, 49 and 87).

aa. Proboscis short, not beak-like.

b. Antennæ very much flattened, strap-like; palpi porrect, not incurved (figs. 47, 48).

c. R_2+3 ends in R_1 (fig. 82).

cc. R_2+3 ends in the costa (fig. 83).

bb. Antennæ not conspicuously flattened, palpi incurved, and moderately elongate.

c. Media arises at the base of the wing, basal section may be delicate and fold-like.

d. R_2+3 ends in the costa (fig. 89).

4. *Hesperodes*.

dd. R_2+3 ends in R_1 (fig. 88).

5. *Apemon*.

cc. Media apparently arises at the crossveins; i. e., its basal section wanting (figs. 84, 85, 86).

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6. *Platyura*.

1. Genus *Asindulum* Latreille. E*Asindulum*. Latreille, Hist. Nat. Crust. Ins. XIV. 290. 1805.

Head transversely oval; middle ocellus smaller than the laterals; proboscis much elongated, deeply cleft (figs. 46, 49), palpi 4 jointed, incurved; antennæ 2+15 jointed, apical joint small, papilliform. Thorax arched; abdomen with 8 visible segments. Legs slender, the femora, particularly the hind pair, stout, the tibiæ with spurs and with delicate lateral setæ. Venation (fig. 87) as figured, resembling that of *Platyura*.

Table of species.

- a. Length 8 to 8½ mm.; abdomen with the first 3 segments black, the remaining ones more or less yellow. N. Y., N. H., S. D. 1. *montanum*.
- aa. Length about 5mm.
 - b. Abdomen wholly and thorax mainly black; fore metatarsus .8 as long as its tibia. Canada. 2. *coxale*.
 - bb. Abdomen and thorax more or less yellow. New Hampshire. 3. *flavum*.

1. *Asindulum montanum* Røeder.1887. *montanum* Røeder, Wien. Ent. Zeit. VI. 116.

Male and female. Length 8 to 8½ mm. Black, epistome yellow, proboscis (fig. 46) black, antennæ fuscous-black. Thorax of the male black with yellow humeral angle and pleura; of the female and immature males yellow with three black longitudinal stripes; scutellum yellowish, often infuscated. The first three abdominal segments black, the remaining ones yellow though not infrequently more or less infuscated. Hypopygium yellowish brown; the inferior forceps lamelliform. Legs yellow, fore metatarsus ¾ as long as its tibia. Wings (fig. 87) hyaline; apically especially on costal margin somewhat smoky. Halteres yellow. White Mountains, N. H. (Cornell University collection); Adirondack Mountains, N. Y.; and S. D. (Aldrich).

2. *Asindulum coxale* Loew.1869. *coxale*, Loew. Berl. Ent. Zeitschr. XIII. 132. 4.

Male. Length 5 mm. Black, including head, antennæ, proboscis (fig. 49) and body pile. Anterior part of lateral margin

of the mesonotum narrowly yellowish as well as the sides of the scutellum. Abdomen and hypopygium black, the superior forceps slender, the inferior pair broad, neither very prominent. Coxæ and legs yellow, trochanters, tibial spurs and tarsi blackish; fore metatarsus .8 as long as its tibia. Wing subhyaline, slightly more cinereous apically. Halteres yellowish, knob fuscous above. Recorded from Hudson Bay Territory. I have a specimen from Montreal.

3. *Asindulum flavum*. Winnertz.

1846. *flavum* Winnertz, Stett. Ent. Zeit. VII. 17.
(Macrorrhyncha).

Male and female. Length 4 to $5\frac{1}{2}$ mm. Face, epistome, labellæ, lower front, base of antennæ, and occiput yellow; proboscis and remaining parts of the head black. Thorax yellow with 3 pale brown, sometimes obsolescent, stripes; scutellum with black hairs. Abdomen of the male with basal segments yellow, apical segments brown to black, hypopygium black; of the female yellow, anterior margin of each segment with a brown transverse fascia, terminal segments usually black; in immature specimens the fascia are obsolete. Coxæ and femora pale yellow; tibiæ pale brown; tarsi, spurs and setæ of tibiæ, brown; fore metatarsus $\frac{3}{4}$ as long as its tibia. Wing yellowish. Halteres whitish. The larvæ have been found in decaying wood. I have seen a specimen from New Hampshire.

2. Genus *Ceroplatus* Bosc.

Ceroplatus, Bosc. Act. Soc. Hist. Nat. Paris I. 1. 42. 1792.

Head small, ovate; three ocelli arranged in a transverse curved line; palpi (fig. 47) not incurved, 3 or 4 jointed; antennæ shorter than head and thorax taken together, very broad and flat, compressed, strap-like, 2+14 joints, the intermediate joints much broader than long (fig. 48). Thorax ovate; abdomen with 7 visible segments. Legs long, lateral setæ of tibiæ either absent or very minute. Wings (fig. 82) shorter than the abdomen; costa produced beyond the tip of R_1 but ending before the tip of the wing; subcosta ends in the costa; subcostal crossvein, when present, basal in position; R_2 ends in R_1 ; media with a short petiole; anal vein produced to the wing margin.

Table of species.

- a. Thorax and abdomen black, lateral margin of abdominal segments whitish; wing with black mark; length 10 mm. Carolina. 1. *carbonarius*.
- aa. Thorax more or less yellow.
 - b. Abdomen nearly entirely yellow; coalesced part of the media longer than the petiole. 2. *terminalis*.
 - bb. Abdomen with distinct brown markings.
 - c. Coalesced part of the media about equal to the length of the petiole; dark spot near apex of wing; abdominal segments more than half yellow. 3. *clausus*.
 - cc. Coalesced part of the media about twice the length of the petiole; no spot near apex of wing in male, and only feebly indicated in the female; yellow of abdomen confined to apical third of each segment. 4. *militaris*.

1. *Ceroplatus carbonarius* Bosc.1802-4. *carbonarius* Bosc, Nouv. Dict. Nat. Hist. IV. 543.

Length 10 mm. Head black; thorax black, smooth; abdomen elongate, cylindrical, black, the lateral margins of each segment white; wing hyaline with black apex; legs dusky. Carolina.

2. *Ceroplatus terminalis* Coquillett.1905. *terminalis* Coquillett. Journ. N. Y. Ent. Soc. XIII. 69.

Male. Length 9-10 mm. Light yellow; claws and ocellar area, black; vertex, a fine median line and 2 pairs of thoracic dorsal stripes of which the inner pair converge posteriorly, longitudinal pleural stripes, sternum, median spot on scutellum, lateral spots on first abdominal segment, knob of halteres, spot on sides of middle and hind coxæ and their apices, antennæ and forceps more or less brown. Antennæ more dusky yellow than the remaining parts. Inferior tubercle of the first antennal joint subconical, over half as long as the diameter of the second segment. Thoracic and abdominal setæ black. Wings hyaline, veins yellowish brown, an oval yellowish cloud over R_2+3 extending into the adjacent cells, subcostal crossvein present;

coalesced part of the media a little longer than the petiole. Tibiæ and tarsi appear infuscated because of the longitudinal rows of the black setulæ; metatarsi of middle and hind legs sparsely ciliate on flexor surface with short setæ. Described from a specimen from the Western states. The species was recorded from Kaslo, British Columbia, by Mr. Coquillett.

3. *Ceroplatus clausus* Coquillett. ✓

1901. *clausus*, Coquillett, Proc. U. S. Nat. Mus. XXIII. 594.

Male and female. Length 7 to 8 mm. Yellow, upper part of head brownish yellow, a black ocellar dot, the antennæ, 4 indistinct vittæ on mesonotum, 1 or 2 spots on pleura, a fascia at base of each segment of abdomen and knobs of halteres brown; antennæ greatly compressed, the joints except last one wider than long; wings (fig. 82) hyaline, a grayish brown spot fills the cell R_2+3 and encroaches on the adjoining cells; subcostal vein extends considerably beyond the base of the radial sector; subcostal crossvein close to the humeral, R_2+3 ends in R_1 at about its length before the apex of the latter, costa scarcely extending beyond the apex of R_2+3 , cubitus forks considerably beyond the base of the radial sector. Recorded from New Hampshire and New Jersey by Coquillett. I have specimens from Ithaca, New York.

4. *Ceroplatus militaris* n. sp.

Male. Length 8 mm. Face, palpi, posterior margin of eye, and narrow space over base of antennæ, yellow; vertex posterior part of head, antennæ, and a slender streak between antennæ brown; ocellæ area black; basal joint of antenna with tubercle below. Thorax mainly yellow, with 6 dark brown longitudinal stripes, the median pair meeting posteriorly and produced upon the scutellum, sometimes a slender median line between this pair, the latter sometimes connected by a transverse stripe anteriorly; the first laterals somewhat broader than the median pair; the second laterals on the margin of the mesonotum, narrow, and sometimes interrupted, usually reaching the base of the wing, pleura with large brown spot, sternum and margin of the prominent pteropleural lobes infuscated; scutellum and metanotum yellow. Setæ on thorax short, black and sparse; those on

mesonotum and scutellum rather more conspicuous. Anterior 2-3 of each tergum brown, posterior third yellow, venter mainly yellow, seventh segment nearly wholly brown, terminal segment yellowish; abdominal setæ short, black, those on posterior margin of first ventral segment most conspicuous; the forceps which are pale yellow consist of 2 small conical lobes. Coxæ and legs pale yellow, extreme tips of coxæ and immediate bases of femora brown, second and third coxæ sometimes with a brown spot near middle; tibiæ and tarsi appear infuscated due to the fine, black setulæ which are arranged in longitudinal rows; metatarsi of middle and hind legs, sparsely ciliate with small setæ which are less than half as long as the diameter of the metatarsus. Wings hyaline, faintly smoky, the cell R_2+3 somewhat more dusky, veins brown; subcostal crossvein present, basal in position; coalesced part of the media about twice as long as the petiole, Halteres yellow with brown knob. Ithaca, New York. Specimens also from Intervale, N. H. (G. M. Allen); Philadelphia (C. W. Johnson).

A female specimen from Philadelphia differs in having a suggestion of a black cloud on apex of the wing and abdomen with greater extent of brown fasciæ.

3. Genus *Cerotelion* Rondani.

Cerotelion, Rondani, Dipt. Ital. Prodrum, I. 191. 2. 1856.

This genus possesses the characters of *Ceroptatus* but differs in having the anterior branch of the radial sector R_2+3 ending in the costa instead of in R_1 (fig. 83). As far as known the subcostal crossvein is absent and the claws have only 1 or 2 basal teeth.

Table of Species.

- a. Thorax spotless, reddish yellow, pleura yellow; abdomen reddish yellow, base of basal segments and the whole of the apical segments black. Length 3.7 mm. Kansas.
 - 1. *apicalis*.
- aa. Thorax with stripes.
 - b. Fore metatarsus a little longer than its tibia. Length 5 mm. Mexico, Pennsylvania.
 - 2. *bellulus*.
 - bb. Fore metatarsus 2.5 times as long as its tibia. Length 6 mm. St. Vincent.
 - 3. *longimanus*.



1. *Cerotelion apicalis* Adams.

1903. *apicalis*, Adams, Kans. Univ. Science Bull. II. 2. 22.
(Ceroplatus).

Male. Length 3.7 mm. Head brownish, anterior part of front, 2 basal joints of antennæ, face and mouth-parts yellow; thorax immaculate, reddish yellow, the black pile very short, except on the sides, pleura light yellow, halteres with knobs slightly infuscated; abdomen reddish yellow, base of second, third, fourth, and remainder of apex wholly black; legs light yellow, apical half of tibiæ and tarsi wholly blackish; wings hyaline; smoky towards apex, subcostal vein ends in the costa about midway between humeral crossvein and base of the radial sector, R_2+3 ends in costa about midway between tip of R_1 and apex of R_1+3 , furcation of cubitus almost opposite base of radial sector. Kas.

2. *Cerotelion bellulus* Williston.

1900. *bellulus*, Williston, Biol. Centr. Amer. I. 219
(Ceroplatus).

Male. Length 5 mm. Head black, the narrow face and the palpi brownish. Antennæ brownish-black, the first 2 joints somewhat yellowish; flagellum broad and flattened, about twice the length of the head. Mesonotum not shining, brownish in color; in the middle with 2 coalescent stripes, terminating acutely behind and separated from a moderately broad oblique stripe of the same color on each side by a slender V-shaped brown marking. Pleura light yellow along the noto-pleural suture and below the root of the wing, brown elsewhere. Scutellum brownish. Metanotum yellowish. Halteres blackish, with a yellow stem. Abdomen brown, blackish at the tip; the anterior part of the fourth and fifth segments yellow. Coxæ yellow, the distal half of the 2 posterior pairs brown; femora yellow; tibiæ and tarsi brownish. The tibiæ without bristles. Wings (fig. 83) tinged with brownish; subcostal vein strong, not connected with R_1 ; the radial sector arising about opposite the middle of the distance between the humeral crossvein and the tip of the subcostal vein, R_2+3 oblique, terminating a little distance beyond the tip of R_1 , the costal section intervening not as long as R_2+3 ; the costal vein extends a little distance

beyond the tip of R_{4+5} ; prefurca of the media nearly as long as the first section of the radial sector. Mexico, Teapa in Tabasco.

In Williston's figure the palpi appear incurved, this, however, may be the engraver's error. I have a specimen from Pottstown, Pa. (collected by C. W. Johnson) in which the face and palpi are yellow; the coalesced part of the media is but little more than half as long as the petiole; and each claw has a tooth near the base.

3. *Cerotelion longimanus* Williston.

1896. *longimanus*, Williston. Trans. Ent. Soc. Lond. 258
(*Ceroplatus*)

Male. Length 6 mm. Face yellow, very narrow. Palpi and first 2 joints of the antennæ yellow; remainder of the antennæ dark brown. Antennæ about as long as the dorsum of the thorax. Front narrow, the sides gently convex, black, except on the lowermost portion; the 2 large ocelli about equidistant from each other and from the margins of the eyes. Occiput black. Thorax yellow; the dorsum with 3 broad black stripes, enclosing 2 narrow yellow stripes, which are convergent posteriorly; the median stripe enclosing a slender yellow stripe, which does not reach beyond the middle; a large rounded spot on the mesopleura, another below it on the mesosternum, and the sides of the metanotum, dark brown or black, the middle of the metanotum brownish; scutellum brown. Abdomen slender, cylindrical, dark brown; each segment, save the first and last, with an elongate yellow spot on each side, reaching 2-3 of the way to the hind margin; genital organs yellow. Coxæ light yellow, the hind pair with a brown spot; femora yellow, the base of the middle and hind pairs brown; tibiæ yellowish-brown; tarsi brown; no bristles on the front femora; front metatarsi about 2.5 times the length of the tibiæ; middle metatarsi a fourth or a third longer than the tibiæ; the hind pair scarcely longer; hind tibiæ with two spurs. Wings tinged with brownish; R_{2+3} runs into the costa. St. Vincent Isl., 1000 feet.

4. Genus *Hesperodes* Coquillett.

Hesperodes Coquillett, Entomol. News. XI. 429. 1900.

Subcosta (fig. 89, diagrammatic) ends in the costa beyond the base of the radial sector; the subcostal crossvein is nearly midway between the humeral crossvein and the base of the radial sector, the latter forks beyond the apex of R_1 ; the media originates near the base of the wing and just before the union with the radial sector connected by the crossvein with Cu_1 , and forking a short distance beyond the union with the radius; cubitus forking midway between the base of the radial sector and its union with the media; anal vein prolonged to the wing margin. Antennæ about twice as long as the head and thorax united, cylindrical but tapering to the apex; $2+14$ jointed, the first joint as broad as long, the second twice as broad as long, and the others twice as long as broad; proboscis very robust, shorter than the height of the head; palpi 4 jointed, eyes emarginate opposite the antennæ; ocelli wanting. Abdomen slender, more than 3 times as long as the thorax. This genus, while superficially resembling *Hesperinus* in venation is a true Mycetophilid and more closely allied to *Apemon*, *Platyura*, etc.

Hesperodes johnsoni Coquillett.

1900. *johnsoni*, Coquillett, Entomol. News. XI. 429.

Male. Length 12 mm. Reddish yellow, antennæ and tarsi beyond the base changing to brown, legs destitute of strong lateral bristles, tibial spurs well developed; wings yellowish, becoming grayish hyaline on the posterior margin and at the apex, a brown spot at apex of R_1 . Delaware Water Gap. N. J. July.

5. Genus *Apemon* Johannsen.

Apemon, Johannsen, Genera Insectorum, Mycetophilidæ. 20. 1909.

Resembles *Platyura* but differs in having a distinct, though delicate, fold-like basal portion of the media arising near the base of the wing, and in having no setæ, but only fine hairs upon head, thorax, coxæ and femora. The setæ of the abdomen, tibiæ and tarsi very small and inconspicuous. Antennæ $2+14$ jointed, flagellar joints cylindrical, under 20 diameter magnifi-

cation only indistinctly pilose; ocelli large, arranged in a transverse line on the broad front, middle one only slightly smaller than the others; eyes pilose; palpi incurved, rather long, basal joint very small, second broad, about as long as broad, third joint about half as broad but twice as long as the second, fourth slender, about 5 times as long as broad; proboscis short. Thorax moderately arched, dorsum and scutellum provided only with hairs, those over the base of the wing and on the scutellum rather longer, pleura and metathorax nearly bare. Abdomen depressed, flattened, broadened apically, segments finely setulose, particularly on basal portion; male genitalia (fig. 97) small, simple, consisting primarily of two incurved lateral lobes, toothed at the apex. Legs moderately long; coxæ long, these and the femora short haired, setulæ of the tibiæ less than $\frac{1}{4}$ the diameter of tibia in length, spurs strong; fore metatarsus shorter than the tibia; all tarsi finely setulose, claws with teeth near the base of each; empodium conspicuous. Wings (fig. 88) resembling those of *Platyura*; media arises near the base of the wing; its first section is delicate and fold-like; R_2+3 joins R_1 near its apex; anal vein prominent, produced to the wing margin.

Table of species.

- a. Subcosta short, ending at or before the base of the radial sector.
 - b. Length 6 mm. Abdomen yellow with anterior portion of each segment black. 1. *gracilis*.
 - bb. Length 8 to 12 mm. Abdomen reddish yellow, first segment black; female. 2. *pectoralis*.
- aa. Subcosta ends distad of base of radial sector.
 - b. Mesonotum and abdomen reddish yellow, pleura, metanotum and first abdominal segment black; male. 2. *pectoralis*.
 - bb. Mesonotum black or with brown stripes.
- c. Abdomen in part reddish yellow.
 - d. Mesonotum reddish yellow with 3 dark brown stripes; part of third, fourth and fifth abdominal segments yellow, other segments black. 3. *maudæ*.
 - dd. Mesonotum black, abdomen yellow, except first 2 segments. 4. *pulchra*.
- cc. Abdomen wholly black. 5. *nigriventris* n sp.

1. *Apemon gracilis* Williston.

1893. *gracilis* Williston, Kas. Univ. Quarterly II. 60
(Platyura).

Male. Length 6 mm. Antennæ black, much shorter than the thorax; first 2 joints yellowish. Head yellow, the vertex blackish. Thorax, coxæ, and femora yellow; the mesonotum more reddish with a fringe of black hairs above the root of the wings. Abdomen slender, not shining; yellow, the anterior portion of each segment brown or blackish. Tibiæ somewhat infuscated by the minute black hairs; tarsi blackish. Wings with a strong yellow or brownish tinge, the extremity with a blackish cloud; subcostal vein very short, terminating before the origin of the radial sector, the subcostal crossvein at about its middle; R_2+3 at some distance before the tip of R_1 ; third anal vein wholly wanting. Washington.

2. *Apemon pectoralis* Coquillett.

1895. *pectoralis* Coquillett, Canad. Entomol. XXVII. 199
(Platyura).

Female. Length 12 mm. Front, occiput and antennæ, black; first 2 joints of the latter, the face, cheeks and mouth parts, yellowish. Thorax and scutellum reddish-yellow, pleura and metanotum bluish-black. Abdomen reddish yellow, the first segment black, the second 3 times as long as broad. Halteres yellowish. Coxæ and femora reddish yellow, tibiæ brownish-yellow, tarsi black. Wings yellowish-grey; a brown spot extends from the costa before the tip of R_1 to posterior branch of the media near its base; apex of wing from midway between tips of R_1 and R_2+3 to apex of anal vein, grayish-brown; a brown cloud on the radial sector near its base; tip of subcostal vein opposite base of the radial sector, subcostal crossvein 1.5 times the length of the humeral beyond the latter; R_2+3 oblique, ending twice its length before the tip of R_1 ; anal vein reaches the wing margin. Nevada.

Several male specimens taken by Prof. Aldrich in June at Grangeville and Moscow, Idaho, differ as follows: the brown cloud on apex of wing (fig. 88) less extended; the subcosta ends distad of the base of the radial sector, R_2+3 is nearly per-

pendicular in position; the fore metatarsus is two-thirds as long as its tibia; hypopygium as figured (fig. 97). One specimen is only 8 mm. long, but otherwise does not differ.

3. *Apemon maudæ* Coquillett.

1895. *maudæ* Coquillett, Canad. Entomol. XXVII. 199
(Platyura).

Female. Length 9 mm. Head and antennæ black, palpi yellowish. Thorax, pleura and scutellum bluish-black. Abdomen reddish-yellow, first 2 segments black, the base of the second tinged with reddish; this segment is half longer than broad. Halteres yellowish. Coxæ reddish-yellow, blackened at their bases, femora deep yellow, tibia brownish-yellow, tarsi black. Wings yellowish-gray, a brownish spot extends from R_1 , before its apex, to the posterior branch of the media near its base; apex of the wing from midway between tips of R_1 and R_4+5 to apex of anal vein grayish-brown; a brown cloud on third vein near its base; tip of subcostal vein twice the length of the humeral crossvein beyond the base of the radial sector; subcostal crossvein 1.5 times the length of the humeral crossvein beyond the latter; R_2+3 oblique, ending nearly its own length before the tip of R_1 ; anal vein reaches the wing margin. Male same as the female except the second abdominal segment is twice as long as broad, and R_2+3 is perpendicular, ending twice its length before tip of R_1 . Washington.

4. *Apemon pulchra* Williston.

1893. *pulchra* Williston, Kas. Univ. Quarterly II. 59
(Platyura).

Male. Length 8 to 9 mm. Antennæ about as long as the thorax; black on the under side, toward the base, red; first 2 joints yellow. Front and face black, the latter with whitish pubescence; palpi and proboscis yellow; occiput black; epistome moderately projecting. Mesonotum shining reddish yellow, with light-yellow hair; 3 dark brown stripes, separated by slender lines, the lateral ones abbreviated in front. Scutellum black. Pleura black, with reddish spots; the projecting metapleura yellowish. First 2 segments of the abdomen black; third segment reddish yellow, with a black hind border; fourth

segment and the anterior part of the fifth reddish yellow; remaining segments black; the hypopygium reddish, with whitish pubescence; abdomen shining. Coxæ and legs (the hind pair is wanting) light yellow; tibiæ infuscated by the minute black hair; tarsi blackish; middle and front tibiæ with short spinules. Wings hyaline, the tip and posterior border infuscated; a narrow brown cloud covers the tip of R_1 and reaches into the base of the cell R_{4+5} ; subcostal crossvein only a little distance beyond the humeral crossvein; tip of subcostal vein beyond the origin of the radial sector; R_{2+3} terminates in R_1 near its tip; prefurca of media very short. Anal vein complete. Washington.

5. *Apemon nigriventris* n. sp.

Male and female. Length $7\frac{1}{2}$ to $8\frac{1}{2}$ mm. Head, including scape of antennæ, thorax, abdomen including venter, genitalia, and margin of the trochanters subshining black; palpi, coxæ, femora and halteres reddish yellow, tibiæ dull yellow, spurs a little paler, tarsi fuscous. Hairs of thorax, pale yellow, arranged in 3 longitudinal lines and along the lateral margins; hairs on humeri, scattering hairs on venter and hypopygium pale, elsewhere on head, thorax and abdomen black; those on the coxæ and femora pale, on tibiæ and tarsi black, setæ of the former very minute, scarcely differentiated from the hairs. Intermediate antennal joints but little longer than wide. The fore metatarsus of the male 0.75 as long as its tibia, in the female about 0.7; tarsal claws toothed, setose on basal half, empodium brush-like, as long as the claws. Wing of the male very faintly smoky; of the female more distinctly smoky on apical half; veins dark brown; R_{4+5} ends very close to the tip of the costa but noticeably before the apex of the wing; subcosta ends about the length of R_{2+3} distad of the base of the radial sector; the subcostal crossvein is situated about twice its length distad of the humeral crossvein; R_{2+3} makes about a 45° angle and ends in R_1 very close to its apex; petiole of the media is shorter than the coalesced section of the media; the fold-like basal section of this vein is hyaline; anal vein sinuous, and reaches the margin of the wing. Three specimens collected in July by Mr. J. C. Bradley. Selkirk Mts., Rogers Pass. B. C. 4600 ft. altitude; and Prairie Hill, B. C. 5800 ft. altitude.

6. Genus *Platyura* Meigen.

Platyura Meigen, Illiger's Mag. II. 264. 1803; Klass I. 101. 1804.
Zelmira Meigen, Nouv. Class. Mouches. 16. 1800. (without type).

Head small, ocelli closely approximated, median smallest; palpi 4 jointed; antennæ 2+14 jointed, cylindrical or somewhat compressed, closely sessile. Thorax oval, setose; abdomen with 7 visible segments, depressed apically. Legs long, femora somewhat thickened; tibiæ spurred, setæ very minute. Wings (figs. 84, 85, 86) somewhat broadened, as long or longer than abdomen; costa prolonged beyond the tip of R_{1+2} and ending before the tip of the wing; subcosta ends in the costa, rarely ending free, subcostal crossvein usually present, R_{2+3} very short usually ending in the costa, rarely in R_1 ; prefurca of media short; anal vein either incomplete or produced to the margin.

Table of species.

- a. R_{2+3} ends in R_1 ; subcostal crossvein wanting (fig. 85); tibiæ each with but one spur. Length 2 mm. West Indies. 1. *parva*.
- aa. R_{2+3} ends in the costa, beyond the apex of R_1 .
- b. Subcostal vein ends noticeably beyond the base of the radial sector.
- c. A distinct transverse fascia or band at or near the apex of wing, or wings with several spots.
- d. Wing with band; thorax brown, a median stripe on posterior half and sides yellowish, abdomen dusky, bases of segments yellowish, halteres with black knob. Length 10 mm. Washington. 2. *fasciola*.
- dd. Wing spotted; length 3 mm. 7. *elegans*.
- cc. Apex of wing hyaline or only indistinctly smoky, no band.
- d. Apices of abdominal segments black; fore metatarsus longer than its tibia; length $4\frac{1}{2}$ mm. 3. *inops*.
- dd. Apices of abdominal segments, yellow.
- e. Thoracic vittæ black; fore metatarsus shorter than tibia. 4. *setiger* n. sp.
- ee. Thoracic vittæ reddish yellow. Washington State. 5. *lurida*.

bb. Subcostal vein ends opposite or proximad of the base of the radial sector.

c. Wing with several distinct brown spots, tibiæ each with but a single spur.

d. Dorsum black with central stripes, fore metatarsus about equal to tibia in length. West Indies,

6. *pictipennis*.

dd. Thorax opaque brownish black, often with yellow central stripe; sides, pleura and scutellum yellow; fore metatarsus shorter than its tibia. Atlantic States.

7. *elegans*.

cc. Wing with only a single preapical fascia, or wholly uniform in color.

d. Wing without a band or fascia near apex.

e. Mesonotum mainly black or dark brown.

f. Length 2 mm; subcostal crossvein apparently wanting; anal vein not produced to margin; female. Eastern States. 8. *mimula* n. sp.

ff. Length over 3 mm.

g. Subcostal crossvein wanting; thorax and abdomen black; apex of wing smoky; length 6 mm.

9. *melasoma*.

gg. Subcostal crossvein present, situated far proximad of middle of subcosta; anal vein produced to margin.

h. Scutellum, pleura and hind margins of abdominal segments yellow.

i. Metanotum yellow.

10. *pullata*.

ii. Metanotum black; fore metatarsus shorter than tibia.

4. *setiger* n. sp.

hh. Thorax wholly black, except humeral angle and at base of wings; hypopygium small (fig. 92).

11. *nigrita* n. sp.

ee. Predominant color of mesonotum yellow.

f. A blackish spot on the proximal part of hind coxæ and adjacent portion of pleura; abdomen reddish yellow; wing with feebly marked band before the tip; length 8 mm.

12. *notabilis*.

fore: f. - - - - -

- ff. Smaller species differing from the above.
- g. $R_2 + r_2$ nearly perpendicular to $R_1 + r_1$.
- h. Abdomen brownish yellow, with black hair; subcostal vein very short; length 3 to 4 mm. West Indies. 13. *ignobilis*.
- hh. Last segment of abdomen black; faint cinereous spot near apex of wing; subcostal vein over two-thirds as long as the basal cell R; length 5 mm. Maine. 14. *fascipennis* var. *sagax* n. var.
- gg. $R_2 + r_2$ noticeably oblique to $R_1 + r_1$.
- h. Length 2 mm; fore metatarsus about half as long as its tibia, male. 8. *mimula* n. sp.
- hh. Length over 3 mm.
- i. Each tibia with but a single spur; fore metatarsus and its tibia subequal in length; apical margin of abdominal segments black; length 5 to 6 mm. West Indies. 15. *fasciventris*.
- ii. Two spurs on each of middle and hind tibiae.
- j. Fore metatarsus about $\frac{5}{8}$ as long as its tibia; coalesced part of the media 2-3 as long as its petiole; anal vein to margin. 16. *moesta* n. sp.
- jj. Fore metatarsus at least $\frac{3}{4}$ as long as its tibia.
- k. Apex of subcosta as far proximad of the base of the radial sector as the length of the first section of the sector; anal vein to margin; hypopygium with lobe-like forceps (fig. 99). 17. *mendosa* ✓
- kk. Apex of subcosta nearly opposite the base of the radial sector. 18. *mendica*.
- dd. Wing with more or less distinct preapical spot or fascia.

- e. A blackish spot on proximal part of hind coxæ and adjacent portion of pleura; thorax and abdomen reddish yellow, wing band feeble; length 8 mm. 12. *notabilis*.

ee. Not as above in all particulars.

- f. R_2+3 nearly perpendicular to R_4+5 .

g. Last abdominal segment wholly fuscous black.

- h. Wing spot distinct; length 3.5 mm. Ga.

26. *divaricata*.

- hh. Wing spot subobsolete; fore metatarsus is about 0.25 longer than its tibia; length 5 mm. Maine.

14. *fascipennis* var. *sagar*, n. var.

gg. Abdomen dusky.

- h. Abdomen of male including last segment slightly dusky; fore metatarsus over 0.4 longer than the tibia; coalesced part of media noticeably longer than the petiole.

19. *subterminalis*.

- hh. Fore metatarsus less than .25 longer than the tibia; coalesced part of media shorter or not longer than the petiole; female.

14. *fascipennis*.

- ff. R_2+3 distinctly oblique to R_4+5 .

g. Subcostal crossvein wanting; blackish species, wing with slight cloud; length 6 mm. 9. *melasoma*.

gg. Subcostal crossvein present.

- i. Fore metatarsus longer than its tibia.

- j. Fore metatarsus about 1-6 longer than the tibia; subcostal crossvein is near the middle of the subcosta.

k. Coalesced part of media equal to or shorter than the petiole; hypopygium (fig. 98); preapical cloud subobsolete. 20. *diluta*.

- kk. Coalesced part of media longer than the petiole; hypopygium (fig. 96).

21. *moerens* n. sp.

- jj. Fore metatarsus over a third longer than the tibia; hypopygium (fig. 107).
 - 19. *subterminalis* var. *nexilis* n. var.
- ii. Fore metatarsus equal to or shorter than the tibia.
 - j. Mesonotum mainly yellow; stripes if present, pale, coalesced part of media shorter than the petiole.
 - k. Anal vein prolonged to margin; hypopygium with lobe-like forceps (fig. 99). 17. *mendosa*.
 - kk. Anal vein not prolonged to margin; fore metatarsus and tibia subequal; hypopygium robust (fig. 100). 22. *genualis* n. sp. ✓
 - jj. Mesonotum black or with dark stripes, coalesced part of media usually equal to or greater than the petiole.
 - k. Fore metatarsus about 1-5 of tibial length shorter than the tibia; subcosta ends about twice the width of the costal cell proximad of the base of the radial sector; length 5-6 mm. 23. *scapularis* n. sp.
 - kk. Fore metatarsus 0.1 or less shorter than tibia; subcostal vein ends not more than the width of the costal cell proximad of the base of the radial sector; length 8-9 mm.
 - 1. Scape of antennæ and base of some abdominal segments yellowish. 24. *elegantula*.
 - ii. Scape of antennæ black; abdomen of male mainly black. 25. *taniata*.

i. *Platyura parva* Williston. *♂ addenda* p. 17, 18.

1896. *parva* Williston, Trans. Ent. Soc. London 257.

Male. Length $2\frac{1}{2}$ to 3 mm. Antennæ brownish-yellow, shorter than the thorax. Posterior part of the mesonotum, the

narrow lateral margins, and 3 slender stripes, brown or black; elsewhere the thorax is yellow, save 2 spots on the pleura, and the metanotum for the greater part, which are black. Abdomen cylindrical, black, the venter and immediate base yellowish. Coxæ and legs yellow; the terminal portion of the tibiæ, and the tarsi, brownish; metatarsi about 3-4 of the length of the tibiæ; all the tibiæ with a single spur and without spines. Wings lightly tinged; R_2+3 enters R_1 near its tip. St. Vincent, Isl.

I have seen a specimen from one of the Lesser Antilles. The ending of R_2+3 in R_1 , the length of the petiole of the media, the absence of the subcostal crossvein (fig. 85) and the possession of but a single spur on each tibia, are characters which combined mark this species as one widely remote from other *Platyura*. It should perhaps be made the type of a new genus.

2. *Platyura fasciola* Coquillett.

1894. *fasciola* Coquillett, Entomol. News. 126 (Ceroptatus).

Female. Length 10 mm. Head including greatly flattened antennæ and large palpi, dark brown; the retracted proboscis, base of the third antennal joint, a small spot beneath each antenna, yellow. Thorax shining brown, a medio-dorsal vitta on posterior half and lateral margins yellow; pleura yellow, a large spot above the middle coxæ and a small one above hind coxæ, dark brown. Scutellum yellow, its base brown, center of metanotum dark brown. Abdomen shining, blackish brown, base of each segment except first, yellow, on second, third and fourth segments prolonged posteriorly is an indistinct dorsal vitta; coxæ and femora yellow, bases of middle and hind femora, and of hind coxæ blackish brown, tibiæ and tarsi brownish yellow. Wings pale yellowish, the apex between tip of R_1 and apex of Cu_1 , blackish, apex of Cu_1 , bordered with blackish, this color projecting into the cell of Cu_1 near its middle. Apex of subcostal vein far beyond origin of the radial sector, being opposite origin of M. Subcostal crossvein before middle of the distance between humeral crossvein and tip of the subcostal vein; R_2+3 very oblique, ending in costa beyond apex of R_1 . Knob of halteres black. Washington.

3. *Platyura inops* Coquillett.1901. *inops* Coquillett. Proc. U. S. Nat. Mus. Bul. 23, 594.

Male and female. Length 4.5 mm. Yellow, an ocella dot and apices of abdominal segments black, most extended on the posterior segments, tarsi yellowish brown; antennæ subcylindrical, the third joint noticeably longer than broad; wings hyaline, a grayish brown spot before apex of R_{4+5} ; subcostal vein extending a short distance beyond base of radial sector, subcostal crossvein at about 1-6 of distance from the humeral to apex of subcostal vein, R_{2+3} ending in the costa at about 1-3 of distance from apex of R_1 to apex of R_{4+5} , costa extending nearly midway between apices of R_{4+5} and M_1 , cubitus forking beyond base of the radial sector. Delaware Water Gap, New Jersey.

One of each sex from Brattleboro, Vermont, taken in July by Mr. C. W. Johnson, and a single specimen from Ithaca, N. Y., have the coalesced part of the media much shorter than the petiole; fore claws with 2 basal teeth each, one of the teeth slender and about 1-3 as long as the claw; the fore metatarsus 1.5 times as long as its tibia; the hypopygium as figured (fig. 101).

4. *Platyura setiger* n. sp.

Male. Length $5\frac{1}{2}$ mm. Head black, subopaque, palpi and mouth parts, and whole of the antennæ fuscous; intermediate antennal joints about as long as broad. Thorax subopaque, mesonotum with three wide confluent black stripes (in one specimen not confluent), the humeri, lateral stripe to base of wings, and margin of scutellum yellow, the other parts black; the setæ on the thorax arranged in rows, a slender median row, one on each side of this on the division between the dark stripes, and a wider lateral row of rather more conspicuous setæ reaching the base of the wings. Scutellar setæ as strong as those at the base of the wing. Abdomen dusky yellowish, the dorsum of the first segment, basal half of the second, the immediate bases of the remaining segments, the whole of the prominent hypopygium (fig. 103), under side of trochanters, and setæ of abdomen, black. Legs including the coxæ, yellow; tarsi appear dusky owing to the black setulæ. Tibial setæ less than half as

long as the diameter of tibia, several rows on each tibia, six to eight on the fore, eight to twelve on the intermediate, and twelve to fifteen setæ on hind tibia in each row. Tarsal claws with teeth. Fore metatarsus is about .8 as long as the tibia. Wings (fig. 86) hyaline, yellow tinged; veins dusky yellow; subcosta ends opposite or slightly beyond the base of the radial sector, $R_2 + \frac{1}{2}$ oblique, coalesced part of the media about half as long as the petiole, anal reaches the margin of the wing. Halteres yellow. Two specimens from Dewatto, Washington, collected by Prof. Aldrich. This species seems to be closely related to *pullata* Coq.

5. *Platyura lurida* Coquillett.

1895. *lurida* Coquillett. Canad. Ent. 199.

Female. Length 6 mm. Head and antennæ black, first two joints of the latter and the mouth parts somewhat yellowish. Thorax, pleura, scutellum, abdomen and legs, pale yellow, the tarsi toward the apex brownish yellow, the thorax marked with three reddish yellow vittæ. Wings hyaline, slightly tinged with yellowish toward the costa, otherwise unmarked; tip of subcostal vein nearly twice the length of the humeral crossvein beyond the base of the radial sector; subcostal crossvein nearly three times the length of the humeral beyond the latter; $R_2 + \frac{1}{2}$ oblique, ending its own length beyond the tip of R_1 ; anal vein reaches the wing margin. Washington.

6. *Platyura pictipennis* Williston.

1896. *pictipennis* Williston. Trans. Ent. Soc. London. 257.

Male and female. Length 3-3½ mm. Front and face yellowish or brownish, the palpi darker colored. Antennæ brownish, about as long as the thorax, moderately compressed. Thorax yellow; the dorsum, save a yellowish spot or stripe in the middle, and the yellow lateral margins, brown or black; disk and sides of the metanotum brown. Abdomen brown or blackish-brown, the posterior margin of each segment yellow. Legs, including the coxæ, yellow, the distal portion of the tibiæ, and the tarsi, brownish; tibiæ without spines; front tibiæ and metatarsi of nearly equal length; the hind metatarsi shorter than their tibiæ; all the tibiæ with a single spur. Wings nearly hyaline, with markings as follows: a large brown spot, reaching

from the costa to the cubitus, over the prefurca; another of about the same size in the outer part of the cell R_4+5 ; and smaller ones in all the cells on the posterior side of the wing; R_2+3 runs into the costa a little beyond the tip of R_1 . St. Vincent Isl., W. I.

7. *Platyura elegans* Coquillett.

1895. *elegans* Coquillett, Proc. Acad. Nat. Sc. Phila. 307.

Male and female. Length 3.5 mm. Head black, lower part of front and the face yellow; antennæ black, the two basal joints yellow; proboscis yellow, its apex and the palpi black. Dorsum of thorax opaque brownish black, the sides, pleura and scutellum, yellow; metanotum brown, this color extending upon the pleura to the middle coxæ. Abdomen shining brownish-black, the first segment, both ends of the second, apices of the third and fourth and the whole of the fifth, yellow; first five ventral segments also yellow. Halteres and legs yellow; tibiæ destitute of bristles. Wings grayish hyaline, marked with two irregular brown crossbands and with two brown spots; the first band begins at R_1 before its tip, is interrupted between the branches of the cubitus, and stops before reaching the hind margin of the wing, its posterior portion scarcely half as wide as the costal part; the second band starts from the tip of R_2+3 and stops at Cu_1 a short distance before its tip, where the band is scarcely one-fifth as wide as at the costa; midway between these two bands is a large brown spot reaching from Cu_1 to the hind margin of the wing at the tip of the posterior branch; a brown cloud on R_2+3 , this branch terminating at twice its length beyond the tip of R_1 . Georgetown, Florida, May; North Carolina.

I have seen specimens from Ithaca and Yonkers, N. Y.; Wisconsin and North Carolina. In the northern specimens the middle of the mesonotum is yellow, leaving two distinct dark lateral stripes; agreeing in this respect with *pictipennis* which appears to be closely related if not identical. In the Carolina specimen the middle of the mesonotum is only slightly paler brown than the sides. The fore metatarsus is about one-fifth shorter than the tibia, and the subcostal vein ends about opposite the base of the radial sector.

8. *Platyura minula* n. sp.

Male. Length 2 mm. Head fuscous, scape of antenna and mouth parts yellowish; flagellum of antennæ dusky yellow. Thorax dusky yellow, humeri and lateral margin of mesonotum somewhat paler, metanotum brownish. First four abdominal segments dusky yellow, posterior margin slightly paler; remaining segments as well as the hypopygium dark brown, subopaque. Hypopygium about as wide as the last visible abdominal segment, the superior forceps subtriangular. Legs yellow, tarsi slightly darker, spurs black; fore metatarsus half as long as its tibia. Wings hyaline, veins dusky yellow; the subcosta ends in the costa before the base of the radial sector; the subcostal crossvein indistinct, R_2+3 oblique, coalesced part of the media about two-thirds as long as the petiole, anal vein apparently reaches the margin. Halteres yellowish. From Polk Co., Wisconsin.

Two females from Hampton, N. H., collected in June by Mr. S. A. Shaw are marked as follows: The head, thorax and abdomen dark brown, subshining; the palpi, scape of antennæ, pleura, sternum, venter and narrow posterior margin of the abdominal segments more yellowish; wings more cinerous; anal vein does not reach the margin; in other respects, venation and leg measurements as in the male.

9. *Platyura mclasoma* Loew.

1869. *mclasoma* Loew, Berl. Ent. Zeitschr. XIII. 135.

Female. Length 6 mm. Black. Anterior and lateral margins of the mesothorax and margin of the scutellum, yellowish; the scutellum itself fuscous black. Abdomen black and with black pile, the first segment more fuscous. Legs and coxæ pale, tibiæ dusky yellow, tarsi blackish. Wings subhyaline, tinged with dusky yellow, darker on the costal margin; subcostal vein ends in the costa opposite the base of the radial sector, the subcostal crossvein wanting; the rather long and oblique R_2+3 ends in the costa not far distad from the tip of R_1 . Length of wing 5 mm. Halteres yellow. Recorded from D. C.

To this description I may add that the preapical wing cloud is short but distinct; the coalesced part of the media is equal or

greater than the petiole. The legs in the type specimen at Cambridge are more or less broken.

10. *Platyura pullata* Coquillett.

1904. *pullata* Coquillett, Proc. Ent. Soc. Wash. VI, 171.

Female. Length $3\frac{1}{2}$ mm. Black, the mouth parts, sides of mesonotum, the scutellum, metanotum, hind margins of the abdominal segments, the genitalia, venter, coxæ, femora, tibiæ, bases of tarsi, and the halteres, yellow; hairs and bristles chiefly black. Thorax thinly gray pruinose, the abdomen polished. Wings hyaline, apex of the subcosta opposite the base of the radial sector, the subcostal crossvein near one-fourth of distance from the humeral to the apex of the subcosta, R_2+3 very oblique terminating about its own length beyond the apex of R_1 , anal vein prolonged to the wing margin. Claremont, Calif.

11. *Platyura nigrata* n. sp.

Male. Length $4\frac{1}{2}$ mm. Head black, palpi, mouth parts, antennæ including scape, fuscous, intermediate antennal joints longer than broad. Thorax subopaque, brownish black, the collar, humeral spots and narrow lateral margin of mesonotum yellowish; scutellum brownish, sparsely setose; the three narrow longitudinal rows of setulæ extending nearly to scutellum and a wider row on each lateral margin extending to base of wing. Abdomen brownish black, subshining; posterior margin of some segments on dorsum faintly on venter more distinctly yellowish. Hypopygium (fig. 92) small, black. Legs yellow, tarsi apparently more dusky due to setulæ; middle and hind tibiæ each with several rows of very short and small setæ, 6 to 10 in a row; fore claws with 2 teeth near base; fore metatarsus about 2-3 as long as its tibia. Wing hyaline, apex very slightly darker, veins yellow except the radius which is brown; subcosta ends before the base of the radial sector; R_2+3 oblique, coalesced part of media about half as long as the petiole, anal vein reaches the margin of the wing. Halteres yellow. Taken at Friday Harbor, Washington, in June by Professor Aldrich.

12. *Platyura notabilis* Williston.1894. *notabilis* Williston. Kansas Univ. Quart. II. 59.

Male. Length 8 mm. Antennæ black, not compressed, a half longer than the thorax; first two joints yellow. Face and lower part of the front reddish yellow; epistoma projecting, beak-like; palpi and proboscis yellowish; front, except the lowermost portion, black. Thorax yellow, the mesonotum somewhat reddish; a blackish spot on the proximal part of the hind coxæ and the adjacent portion of the pleura; a fringe of black hairs just above the root of the wings. Abdomen reddish yellow, with short, black hairs. Legs yellow, the tibiæ and tarsi infuscated or blackish; front tibiæ bare, the middle and hind pairs with short spinules. Wings yellowish, the tip infuscated; a feebly marked brownish band before the tip; the subcostal vein terminates at the origin of the radial sector; R_2+3 joins the costa just beyond the insertion of R_1 . Anal vein complete. Washington.

13. *Platyura ignobilis* Williston.1896. *ignobilis* Williston. Trans. Ent. Soc. London. 257.

Male. Length 3 to 4 mm. Base of antennæ and the face yellow; front and occiput blackish. Thorax reddish-yellow, the dorsum with black hair arranged in distinct rows. Scutellum and metanotum brownish. Abdomen brownish-yellow, with black hair. Legs yellow, the tarsi infuscated; front metatarsi not more than three-fourths the length of the tibiæ. Wings uniformly subinfuscated; R_2+3 is nearly rectangular, terminating in the costa; the subcostal vein is very short. St. Vincent Isl.

14. *Platyura fascipennis* Say.1824. *fascipennis* Say. Long's Expedition. App. II. 360.

Female. Length $4\frac{1}{2}$ mm. Head yellow; center of vertex black. Mesonotum yellow, unmarked or at most with only a faint indication of deeper yellow stripes. Abdomen fuscous, slender at the base, gradually broadening posteriorly; venter dusky, posterior and lateral margins inclined to dusky yellow. Legs and coxæ pale, tarsi infuscated; fore metatarsus about one and one-fifth times, the second fore tarsal joint is about

two-thirds times the tibia in length. Wing yellowish with a brown band near the tip; the coalesced part of the media and its petiole subequal in length; subcosta ends noticeably before the base of the radial sector; R_2+3 nearly perpendicular to R_4+5 ; the subcostal crossvein is placed slightly proximad of the midpoint between humeral crossvein and apex of the subcosta; anal vein not produced to the margin. Halteres yellow. One specimen taken at Montreal in July.

Var. *sagax* n. var. Male. Length 5 mm. Differs from the female in having a paler abdomen, spot on wing less conspicuous and relatively longer legs. Antennæ and front except lateral margin, dark brown; occiput, face, palpi and scape of the antennæ yellow. Antennæ short, the intermediate joints no longer than wide, the hairs black. Mesonotum yellow with four narrow brown stripes, scutellum, pleura and sternum yellow, metanotum slightly infuscated; setæ of the mesonotum, pleura and sternum yellow; metanotum slightly infuscated; thoracic setæ short, black, and not arranged in longitudinal rows. Abdomen yellow, the base of the dorsum of the penultimate and the whole of the ultimate segment brown; hypopygium (fig. 102) mainly brown. Coxæ and legs yellow; tarsi apparently darker; claws each with a slender basal tooth which is over half as long as the claw; fore metatarsus is about one and one-fifth, the second fore tarsal joint about 0.9 as long as the tibia. Wings hyaline, yellow tinged, apex of R_4+5 and costa with a faint cloud; subcosta ends noticeably proximad of the base of the radial sector; subcostal crossvein indistinct; coalesced part of the media about equal to the petiole; R_2+3 perpendicular to R_4+5 ; anal vein does not appear to reach the margin. Halteres yellow. Capens, Maine, taken in July, by Mr. C. W. Johnson.

This variety differs slightly from *subterminalis* in the relative length of metatarsi, petiole of media, and in form of hypopygium.

15. *Platyura fasciventris* Williston.

1896. *fasciventris*, Williston, Trans. Ent. Soc. London. 258.

Female. Length 5 to 6 mm. Head and basal joints of the antennæ reddish-yellow, the distal joints of the antennæ black or brownish-black; the oval ocellar spot black. Front broad,

the orbits emarginate. Thorax reddish-yellow; the dorsum red, with four brown stripes, sometimes feebly marked or obsolete. Abdomen red, or reddish-yellow, with a black band of variable width at the posterior part of each segment; venter yellow. Coxæ and femora light yellow; tibiæ yellow, the tarsi brownish; tibiæ without spines; metatarsi about as long as their tibiæ; all the tibiæ with a single terminal spur. Wings uniformly brownish; R_{2+3} oblique, terminating in the costa. The antennæ are about as long as the dorsum of the thorax. St. Vincent Isl.

16. *Platyura moesta* n. sp.

Male. Length 4 mm. Head black; antennæ fuscous, scape and mouth parts yellow. Thorax dull yellow with five longitudinal lines of black setulæ, lateral lines widest, setulæ longest over base of wings and upon scutellum; metanotum slightly brownish. Basal half or two-thirds of each abdominal tergite black, whole of remaining tergites black, venter yellow except for the black apical margin of each segment; hypopygium (fig. 106) brown. Legs yellow, tibiæ and tarsi apparently darker; fore metatarsus about 5-8 as long as the tibia; each claw with three teeth. Wing hyaline, slightly cinereous; veins yellow, the heavier veins more dusky; subcosta ends proximad of base of the radial sector, the crossvein is proximad of the first third of distance from the humeral crossvein to apex of the subcosta; R_{2+3} oblique and ends about one-fourth of the distance from tip of R_1 to tip of R_{4+5} ; coalesced part of the media is about 2-3 as long as the petiole, anal vein produced to the wing margin. Halteres yellow. Taken August 2 at Longmire's Springs, Mt. Rainier, Washington, by Professor Aldrich.

17. *Platyura mendosa* Loew. ✓

1869. *mendosa* Loew, Berl. Ent. Zeitschr. XIII. 135.

Male. Length 3.5 to 4 mm. Deep yellow, antennæ except the scape, and abdomen dusky; tarsi apparently fuscous; fore metatarsus about one-sixth shorter than the tibia. Wing yellowish, cinereous tinged, veins yellowish; apex of the R_{4+5} and the costa with an indistinct cinereous cloud; subcosta ends in the costa about two-thirds of the length of the basal cell. Subcostal crossvein is proximad of the middle of the subcosta;

R_2+3 oblique; coalesced part of the media about a third as long as the petiole; anal vein produced to the margin; the distance from the humeral crossvein to the base of the radial sector is about one-fourth of the distance to the tip of the wing. Halteres yellow. The hypopygium is robust (fig. 99) the forceps lobe-like. Ithaca, N. Y.; Capens, Maine, July (C. W. Johnson); Knoxville, Tenn. My specimens are like the type in the museum at Cambridge, Mass., which is recorded from the District of Columbia.

18. *Platyura mendica* Loew.

1869. *mendica* Loew. Berl. Ent. Zeitschr. XIII. 135.

Female. Length 3 mm. Yellowish, legs paler, tarsi more dusky. Antennæ rather short, fuscous, the basal joints yellowish. The base of each abdominal segment subfuscous. Wings uniformly yellowish with a tinge of cinereous, veins fuscous; subcostal vein ends in the costa a little proximad of the base of the radial sector; R_2+3 rather long and oblique in position; length of wing 3 mm. Halteres yellow. Recorded from New York.

A female specimen from Hampton, N. H., collected by Mr. S. A. Shaw is 4 mm. long; thorax with indications of three pale brown confluent stripes; fore metatarsus one-fifth shorter than the tibia; subcostal vein ends nearly opposite base of the radial sector; the subcostal crossvein is situated about the length of the humeral crossvein beyond the latter; the tip of R_2+3 and costa very faintly tinged with brown; coalesced part of media about half as long as its petiole; anal vein prolonged to the margin. Excepting for the brown tinge near tip of wing these characters are also possessed by the type in the museum at Cambridge.

A female specimen from Blue Hills, Mass., collected by Mr. C. W. Johnson, in July is similar but thoracic stripes are more distinct, the brown on the abdomen more extended, and without a suggestion of brown near tip of wing.

Some defective specimens from Wisconsin, Oregon and Ithaca, N. Y., seem also to belong here.

19. *Platyura subterminalis* Say. *See Catalogue*1829. *subterminalis*, Say. Journ. Ac. Nat. Sc. Phila. IV. 152.

Male and female. Length $3\frac{1}{2}$ to 4 mm. Body entirely pale honey yellow; antennæ excepting the two basal joints, fuscous; ocelli with a small black areola; thorax immaculate; tergum a little more dusky than the thorax. Tibiæ and tarsi dusky. Wings with a slight yellowish tinge, a blackish subterminal band, occupying on the costal margin all the space between R_2+3 and R_4+5 and extending to the posterior margin; R_2+3 is perpendicular to the costa.

In two male specimens from Ithaca, N. Y., the hypopygium is as shown in figure 104; the fore metatarsus is about 1.4 times, the second fore tarsal joint 7-8 times the fore tibia in length; the subcosta ends proximad of the base of the radial sector; the subcostal crossvein is situated proximad of the mid distance of humeral crossvein and tip of the subcosta; R_2+3 is perpendicular to R_4+5 ; the petiole of the media is less than half as long as the coalesced part; the anal vein does not reach the margin.

Var *nexilis* n. var. Differs from the typical form in having R_2+3 oblique to R_4+5 ; the coalesced part of the media and the petiole subequal and a slight difference in the hypopygium (fig. 107). One specimen from Polk Co., Wisconsin.

20. *Platyura diluta* Loew.1869. *diluta*, Loew. Berl. Ent. Zeitschr. XIII. 134.

Male and female. Length 5 mm. Luteous. Antennæ short, fuscous or subfuscous. The immediate bases of the abdominal tergites sometimes fuscous; the last visible segment and the hypopygium of the male fuscous. Legs pale, tarsi dusky. Wings yellowish, with a short, dilute, subapical fascia; R_2+3 short, oblique. Halteres yellow. Recorded from D. C.

I have seen specimens from New York, North Carolina, Wisconsin and Vermont. The hypopygium is shown in figure 98. The fore metatarsus is about 1.6 longer, the second fore tarsal joint about 1.6 shorter than the tibia. The subcosta ends in the costa proximad of the base of the radial sector; the subcostal crossvein is slightly proximad of the midpoint between the humeral crossvein and the tip of the subcosta; R_2+3 oblique;

the coalesced part of the media is about 2-3 as long as the petiole; the anal vein does not reach the margin. These characters are also possessed by the type in the Cambridge museum.

21. *Platyura moerens* n. sp.

Male and female. Length 5 mm. Head, palpi, and scape yellow; the middle of the front surrounding the ocelli and the flagella brown. Thorax wholly yellow, with only faint indications of darker lines; setæ black, not arranged in longitudinal lines. Abdomen yellow, the immediate bases of the segments more or less brownish, especially in the female; hypopygium as figured (fig. 96). Legs yellow, tarsi appearing darker due to black setulæ; fore metatarsus 1.14, the second tarsal joint 0.94 times the tibia in length. Wings (fig. 84) yellowish hyaline; the subcosta ends in the costa before the base of the radial sector; the subcostal crossvein is about in the middle of the subcosta; R_2+3 is oblique; coalesced part of the media about one-third longer than the petiole; anal vein not produced to the margin; a pale brown diffuse preapical fascia extends from between R_2+3 and apex of the costa to beyond the media, quite faint posteriorly. Halteres yellow. Friday Harbor Washington, July, from Professor Aldrich.

22. *Platyura genualis* n. sp.

Male and female. Length $5\frac{1}{2}$ mm. Head and mouth parts yellow; the flagellum and a spot covering ocelli and extending to the occiput, brown. Thorax yellow with only faint indications of ferruginous stripes; metanotum with brownish spot; setæ of the mesonotum black, very few in number except at the base of the wing and on posterior margin where they are longer and more conspicuous. Abdomen, including venter, yellow; basal third or fourth of segment with a brown fascia which may be more or less emarginate; setæ few, black; hypopygium stout, (fig. 100) yellow, setæ black. Legs yellow, tarsi apparently fuscous; fore metatarsus subequal to, second fore tarsal joint about two-thirds as long as its tibia; empodium small, pectinate, claws each with two stout teeth. Wing hyaline, cloud at apex of costa extends indistinctly to M_2 ; subcosta ends before the base of the radial sector; the subcostal crossvein is

placed near the middle of the subcosta; R_2+3 is oblique and ends in the costa; coalesced part of the media is one-third shorter than the petiole; anal vein is not produced to the margin. Halteres yellow. Pine Lake, Wisconsin (W. M. Wheeler); Black Mts., N. C. (Beutenmueller); Knoxville, Tenn. 1

23. *Platyura scapularis* n. sp.

Male. Length 5 to 6 mm. Head piceous, front subshining black; the posterior eye margin, scape of antennæ and clypeus rufo-piceous; flagellum fuscous, palpi and proboscis yellowish. Mesonotum black subopaque, collar, scutellum, humeri, and lateral margins to the base of the wings, articulations at base of wing, junction of scutellum and metanotum, yellowish; the metanotum including the prominent lateral lobes, pleura, and sternum rufo-piceous. Setæ of mesonotum, black, short, and apparently not arranged in rows, but uniformly distributed, most conspicuous at the base of the wing; those on the scutellum numerous but short. Abdomen subopaque black, some of the ventral segments more or less yellowish, particularly on the posterior margins; hypopygium (fig. 105) black. Legs and coxæ yellow, the middle and hind coxæ sometimes, and tarsi and spurs, fuscous; the black setulæ of coxæ conspicuous at tip; claws toothed; fore metatarsus nine-tenths, the second fore tarsal joint two-thirds as long as the tibia. Wing somewhat smoky, apex from before the tip of R_2+3 , brown; subcosta ends in the costa before the base of the radial sector; the subcostal crossvein is situated proximad of the middle of the subcosta; R_2+3 slightly oblique, coalesced part of the media longer than the petiole in length; anal vein not reaching margin. Halteres yellow. Kendrick, Idaho, and Stanford University, Calif. (Prof. Aldrich).

Female, and immature male. The humeri, lateral margins of mesonotum, base of scutellum, and posterior margins of the abdominal segments yellow. Females from Friday Harbor and Moscow, Idaho. (Prof. Aldrich).

24. *Platyura elegantula* Williston.1900. *elegantula* Williston. Biol. Centr. Amer. 1. 218.

Female. Length 8 mm. Head yellow, the upper portion, to a line just in front of the ocelli, shining black. Palpi and tip of the proboscis brownish. Antennæ brown, the first two joints yellow; in length equal to that of the mesonotum. Mesonotum yellow, with three coalescent black stripes, of which the lateral ones are abbreviated in front; just above the root of the wings the more abundant black hair gives the appearance of a slender black spot. Pleura yellow, the mesosternum and the lower part of the metasternum brown. Metanotum brown, the sides silvery in some lights. Scutellum blackish. Abdomen brownish; the anterior part of the first, third and fourth segments reddish yellow; venter almost wholly of the latter color. Coxæ and femora yellow; tibiæ and tarsi brownish or blackish. Wings strongly tinged with brownish-yellow, the distal portion clouded with brownish; R_2+3 a little shorter than the section of the costa beyond the tip of R_1 ; subcostal vein strong, terminating nearly opposite the origin of the radial sector; prefurca of the media a little more than half the length of the first section of the radial sector. Mexico, Omilteme in Guerrero 8000 feet.

A specimen from Arizona, perhaps immature, has vertex and abdomen yellowish brown; thoracic stripes brown; palpi and scutellum yellowish; fore metatarsus is about .95 as long as the tibia; subcosta ends slightly before the base of the radial sector; the subcostal crossvein is midway between the humeral crossvein and the tip of the subcosta; R_2+3 is quite oblique; the coalesced part of the media is about a third longer than the petiole.

25. *Platyura tæniata* Winnertz.1863. *tæniata* Winnertz Verh. zool.-bot. Ges. Wien. XIII. 701.

Male and female. Length 8 to 9 mm. Reddish; antennæ, front and vertex fuscous or subfuscous; thorax with black stripes; abdomen of the male fuscous, with first segment reddish; of the female sordidly yellowish brown, the segments with fuscous posterior margins. Legs reddish, tarsi fuscous. Wings cinereous, with a fuscous subapical fascia. Fore metatarsus about a twelfth shorter than the tibia. Subcostal

vein ends in the costa opposite the base of the radial sector; subcostal crossvein proximad of the middle of the subcosta; R_2+3 oblique; anal vein strong but does not quite reach the wing margin. This European species has been recorded from New Jersey.

26. *Platyura divaricata* Loew.

1869. *divaricata*, Loew. Berl. Ent. Zeitschr. XIII. 134.

Male. Length 3.2 mm. Luteous. Flagellum of the antenna rather short, fuscous. Abdomen wholly yellow except for the small terminal segment which is fuscous, hypopygium blackish. Wings with yellowish tinge, apical third of wing cinerous fuscous, extreme tip cinereous; subcosta ends in the costa proximad of the base of the radial sector; subcostal crossvein slightly proximad of middle of subcosta; R_2+3 nearly perpendicular to R_4+5 ; cell M_1 wider than in *P. subterminalis*; coalesced part of the media equal or slightly greater than the petiole; anal vein does not quite reach margin of the wing. Length of wing 3.2 mm. Fore metatarsus about .3 longer than its tibia. Recorded from Georgia. Described from the type specimen in the Museum at Cambridge, Mass.

✓ 5. Subfamily *Macrocerinae*.

Macrocerinae, Winnertz. Verh. zool-bot. Ges. Wien. XIII. 675. 1863.

This subfamily differs from the *Ceroplatinae* primarily in having extremely long antennæ, often much longer than the body. There is but one living genus.

✓ Genus *Macrocera* Meigen.

? *Euphrosyne* Meigen, Nouv. classif. des mouches. 16. 1800, Doubtful type.

Macrocera, Meigen, Illiger's Mag. II. 261. 1803; Klass. I. 1804.

Head broad, oval; eyes oval, slightly emarginate; the anterior median ocellus smaller than the laterals; palpi four jointed; antennæ 2+14 jointed, often much longer than the body. Thorax highly arched; abdomen depressed, with seven visible segments. Legs long and slender, the fore pair much shorter; tibial setæ wanting or very minute; spurs small. Wing (fig. 90)

broad, usually longer than abdomen; subcosta ends in the costa; subcostal crossvein present, basal in position; costa produced beyond the tip of R_4+5 ; R_2+3 oblique, and often sinuous, ending in the costa; the basal section of the media usually present, though delicate and fold-like, dividing the basal cell, coalescing with the radial sector before the crossvein, differing in this respect from *Apemon* and *Hesperodes* where the coalescence takes place distad of the crossvein; anal vein more or less sinuous, and reaching the wing margin; hypopygium (figs. 93, 94) consists of simple forceps resembling those of *Apemon*.

Table of species.

- a. Apex of wing hyaline.
 - b. A distinct spot covering petiole of the media.
 - c. Length 4 to 5 mm; thoracic stripes and bases of abdominal segments brown.
 - d. With a preapical and a central spot on wing.
 - 1. *diluta*.
 - dd. No preapical spot. 2. Specimen from Wyo.
 - cc. Length 3 mm; abdominal fascia subobsolete; apex of R_1 thickened. 3. *inconcinna*. ✓
 - bb. No spot covering petiole of media, or at least very indistinct.
 - c. Apex of R_1 much thickened, the costa thickened from apex of R_1 to that of R_2+3 ; tip of R_2+3 four times as remote from tip of R_4+5 as from R_1 . 4. A defective specimen from Pine L. Wis.
 - cc. Apex of R_1 not distinctly thickened.
 - 5. *immaculata*. ✓✓
 - aa. Apex of wing dusky.
 - b. With a preapical as well as an apical band on the wing.
 - c. Abdomen luteous, apex blackish.
 - d. Wing with four irregular fasciæ; the first extending from apex of the subcosta to the anal angle. 6. *nebulosa*. ✓
 - dd. No fascia extending back from apex of subcosta; R_1 not thickened. 7. *hirsuta*.

- cc. Apex of each abdominal segment blackish; distance from tip of R_2+3 to R_4+5 over twice as great as from R_1 to R_2+3 ; wing with two fascia connected with each other along the veins and two smaller spots.
 - d. Thorax not striped. 8. *formosa*. ✓
 - dd. Thorax with stripes.
 - 8a. *formosa*, var. *indigena* n. var.
- bb. With but a single cloud on apex of wing, no preapical fascia.
 - c. Apex of R_1 thickened.
 - d. Antennæ of male four times, of female at least twice the length of the body.
 - e. Thoracic stripes wanting or but feebly indicated. 9. *clara*. ✓
 - ee. Thoracic stripes brown. 10. *concinna*. ✓
 - dd. Antennæ of female less than one and one-half times the length of the body. 11. Sp.
- cc. Apex of R_1 not thickened; distance from R_1 to 2_2+3 about three-fourths as great as from R_2+3 to R_4+5 . 12. *geminata* n. sp.

1. *Macrocera diluta* Adams.

1903. *diluta*, Adams. Kas. Univ. Science Bulletin II. 22.

Male: Yellow, shining; antennæ, except base, two stripes on occiput, three fascia on mesonotum, the central one joining two narrow ones coming from base of wings, three spots on pleura, lower half of metanotum, base of abdominal segments from the third, with hypopygium wholly, small spot on base of middle and posterior coxæ, tips of femora and tibiæ, dark brown; wings hyaline, fascia near central part dark brown, a small fuscous spot on anterior margin about midway between tip of R_2+3 and apex of wing, not reaching the media.

Female: Agrees with the male, except that all of the abdominal segments, without the first, have the base dark brown; the subapical spot of wing is larger, crossing M_1 . Length 5 mm.; antennæ, 7 mm. Arizona, August.

2. *Macrocera* sp.

Female. Length 4 mm. Antennæ partly missing; the first flagellar joint about as long as the second fore tarsal joint. Color reddish yellow, head infuscated; three wide black thoracic stripes; basal half of each abdominal segments blackish, last segment black; venter mainly yellowish; legs yellow, tarsi infuscated; fore metatarsus about .6, second tarsal joint about .3 as long as the tibia. Wing hyaline; medium brown band extends from apex of R_1 diagonally proximad to the posterior branch of the cubitus filling the space traversed by the petiole of the media; apex of the wing at the tip of R_4+5 slightly yellowish; apex of R_1 slightly thickened; R_2+3 ends nearly midway between apices of R_1 and R_4+5 . One defective and apparently discolored specimen from Little Wind River, Wyoming, taken in September by W. M. Wheeler.

3. *Macrocera inconcinna* Loew. ✓

1869. *inconcinna* Loew. Berl. Ent. Zeitschr. XIII. 133.

Female. Length 3mm. Yellowish, thoracic stripes and abdominal fasciæ indistinctly pale brownish. Antennæ over one and one-half times as long as the body; the flagellum black. Legs pale yellowish, tarsi deep fuscous. Wing cinereous, toward the tip and toward the posterior margin with longer pile and a little more deeply cinereous; R_1 thickened at the apex; R_2+3 short, oblique; on the disk with a large subfuscous spot, extending from a fuscous longitudinal line which lies in the cell R_1 to Cu_2 ; also a faint cuneate spot in the basal cell R ; length of the wing 4 mm. Halteres yellow. Recorded from the District of Columbia. In the type specimen the apex of R_2+3 is close to tip of R_1 and widely remote from R_4+5 , as in *M. clara*.

4. *Macrocera* sp.

Two defective specimens from Pine Lake, Wisconsin, collected by Prof. W. M. Wheeler, resemble *immaculata* and *inconcinna* in some respects but differ from each. The petiole of the media is surrounded by a very faint cloud; the subcosta ends about opposite the coalesced part of the media; R_1 is thickened at the tip and ends less than the length of the petiole of

the media before the tip of R_2+3 which is short but quite oblique. The antennæ are yellow but are infuscated beyond the third joint. Most of the legs, greater part of the antennæ and abdomen are wanting in both specimens.

5. *Macrocera immaculata* Johnson. ✓

1902. *immaculata*, Johnson. Canad. Ent. XXXIV. 240.

Male and female. Length 5 mm. Head yellow, vertex brownish; antennæ dark brown, the 2 basal joints yellow. Thorax dark yellow, with the anterior margin and humeri light yellow. Abdomen dark brown, shining, with a wide yellowish posterior margin on each segment. Legs yellow, slightly brownish at the tips of the femora, tibiæ and tarsi; legs and abdomen in the male with fine black hairs, which are less conspicuous in the female. Wings yellowish hyaline, with a slight brownish stigma and very fine hairs. The antennæ and posterior legs each about double the length of the body. Pa. and N. Y. (June).

6. *Macrocera nebulosa* Coquillett.

1901. *nebulosa*, Coquillett, Proc. U. S. Nat. Museum XXIII. 594.

Male and female. Length 4 to 5 mm. Yellow, the antennæ except the base, three large spots on the pleura, knobs of halteres bases of abdominal segments two to five and whole of abdomen beyond the fifth segment in the male, the base of each segment except the first in the female, also the tarsi, dark brown; body polished; wings bare, hyaline, marked with four irregular brown fasciæ; the first begins at apex of subcostal vein and extends to the anal angle; the second extends from apex of R_1 to apex of the anal, and is almost, or quite, interrupted in the medial cell; the third extends from R_2+3 to apex of Cu_1 , while the last one borders apex of wing and is connected with the preceding one along R_2+3 and both branches of the media. Recorded from New Hampshire and New Jersey.

7. *Macrocera hirsuta* Loew. ¹

1869. *hirsuta*, Loew, Berl. Ent. Zeitschr. XIII. 132.

Male. Length 5.2 mm. Yellowish, with long black pile. Vertex subfuscous; antennæ scarcely one and one-half times as

long as the body, blackish apically. Stripes on mesonotum and spots on the pleura subfuscous; abdomen blackish apically; hypopygium blackish. Coxæ yellow, posterior pairs fuscous at the apex, pile black; legs pale, tarsi subfuscous. Wings yellowish with light cinereous tinge, apically and posteriorly with rather long pile; a rather large central spot, fuscous; a complete subapical fascia and apex of wing, fuscous-cinereous; apex of R_1 not thickened; R_2+3 very long and bent down, length of wing 5 mm. Halteres yellow. Recorded from the District of Columbia.

In the type specimen the distance from R_1 to R_2+3 is about 1-3 or 1-4 as great as from R_2+3 to R_4+5 , and the bands at apex of wing are not connected with each other by clouds along the veins.

8. *Macrocera formosa* Loew. ✓

1866. *formosa* Loew, Berl. Ent. Zeitschr. X. 6.

Male and female. Length 4 mm. Pale yellow. Antennæ yellow, darkened apically. Thoracic stripes wholly lacking or but faintly indicated. Posterior margin of each abdominal segment black, the last three in the male sometimes wholly black, forceps yellow. Legs pale, tips of the middle and hind femora black, of hind tibiæ subfuscous, tarsi subfuscous, darker towards the tip. Wing hyaline, apically and posteriorly with longer pile; a minute blackish spot near the base, a large spot on the middle extending from the costa to the cubitus; apex with two fasciæ, the first subapical, arcuate, the second apical; these bands coalescing on the costa and along the course of the veins. Recorded from New York.

Var. indigena, n. var. Differs from Loew's type specimen in having three distinct thoracic stripes which are usually brown, though in one specimen is almost black. The hypopygium is dusky yellow in the paler specimens, but is usually dark brown.

Male. Head and mouth parts yellow, vertex brown, antennæ yellow, infuscated toward the tip, about one and two-thirds times the length of the insect; mystax black. Thorax yellow with three dark brown stripes on mesonotum; sternum, metanotum and a spot on pleura near base of wing brown; setæ black; scutellum pale yellow with transverse row of small black setæ.

The first abdominal segment, the apices of the second, third, fourth, fifth, and the whole of the remaining segments brown, both dorsally and ventrally; hypopygium (fig. 93) usually dusky, setæ black, forceps with the two terminal teeth closely approximated. Coxæ and legs yellow, tips of middle and hind coxæ and tarsi infuscated; fore metatarsus .8 as long as its tibia, the second fore tarsal joint $\frac{3}{4}$ as long; pulvilli bushy, the hairs clavate, claws simple. Wings hyaline, hairy, especially towards the apex, veins brownish yellow; a brown cloud covers the petiole of the media, extending anteriorly reaching the subcosta and posteriorly to Cu_2 , more or less interrupted in the second medial cell; the basal section of the radial sector with a brownish cloud; a narrow preapical fascia extends from the tip of R_2+3 to beyond Cu_1 , more conspicuous where intersected by a vein, and a broad apical band, separated from preapical fascia by a hyaline space as wide as this fascia; the subcosta ends about opposite the coalesced part of the media; R_1 is strong but not thickened at the apex; R_2+3 is very oblique and somewhat longer than the petiole of the media, costa produced beyond the tip of R_1+2 as far as the length of the M-Cu crossvein; anal vein strong, produced to the margin. Halteres yellow.

Female. Like the male, but the antennæ are only about one-sixth longer than the body and the brown fasciæ of the abdomen are more extended. Several specimens from Ithaca, New York.

9. *Macrocera clara* Loew. ✓

1869. *clara* Loew, Berl. Ent. Zeitschr. XIII. 133.

Male and female. Length $3\frac{1}{2}$ to 4 mm. Slender, pale yellowish, pile of the body pale. Antennæ slender, in the male nearly four times, in the female nearly three times as long as the body, scape yellowish, flagellum fuscous. Thorax unmarked; abdomen with long pale pile; each segment fuscous at the base. Coxæ and legs pale yellow, tarsi subfuscous toward the tip. Wings hyaline, apically and posteriorly with long pile; apex of R_1 thickened and infuscated, joined with the radial sector by a fuscous spot; a central fuscous spot interrupted anteriorly at the radial sector, extends posteriorly subobsoletely along Cu_2 to the margin; apex of wing widely fuscous; R_2+3 short, pale,

oblique. Halteres yellow. Recorded from the District of Columbia.

To the above description may be added that between R_1 and the radial sector there is a thickening of the wing membrane simulating a longitudinal vein (fig. 90); fore metatarsus over two-thirds, the second foretarsal joint one-third as long as the tibia; front tibiæ suddenly dilated at their tip; thoracic stripes sometimes feebly indicated; hypopygium similar to that of *geminata*. The female specimens which I have seen, some of them coming from the same locality as the males, have black setulæ on the abdomen and rather wide black fasciæ; and the antennæ are twice not thrice as long as the body. Penn. and Tenn. (Aldrich), Wis. (Wheeler) and New York.

10. *Macrocera concinna* Williston.

1896. *concinna* Williston, Trans. Ent. Soc. London. 255.

Differs from *clara* only in having the three stripes on the thorax, a vertical stripe on the pleura, scutellum and metanotum, brown. It is more probably the same as *clara* and not *inconcinna* as Professor Williston has suggested. Recorded from St. Vincent Isl. W. I.

11. *Macrocera* sp.

A female specimen from Friday Harbor, Washington, taken in July by Professor Aldrich differs from *clara* in having shorter antennæ, but little longer than the insect; fore metatarsus a little over half as long as the tibia; and feebly indicated thoracic stripes. Venation and markings like *clara*.

12. *Macrocera geminata* n. sp.

Male. Length 4 mm. Head, face and mouth parts yellow; covering the ocelli a large brownish triangle the vertex of which extends onto the occiput; setæ of labrum and vertex black; antennæ about six mm. long, fuscous, the scape and the first flagellar joint except the base and the apex of each of the second, third and fourth joints more yellowish. Thorax shining yellow with shining brown markings as follows: the anterior margin of mesonotum with a large triangle, two broad stripes widening posteriorly and nearly meeting in front of the scutellum, a longitudinal dash behind the humeral callus

and extending nearly to the base of the wing, a large oval spot just below this, the ventral margin of the pleura just above the middle coxæ and the metanotum; the two longitudinal rows of fine setæ on the mesonotum mesad of the longitudinal stripes, two rows of larger setæ extending to the base of the wing, several pairs on the posterior margin, and a few less prominent ones on the scutellum, black. Abdomen yellow, the first segment pale brown, both dorsal and ventral sclerites of the other segments each with dark brown basal fascia about half the width of the segments anteriorly but wider on the posterior segments, the dorsal sclerites also with pale brown apical fasciæ; hypopygium brown (fig. 94) the two apical teeth far apart; setæ black. Coxæ and legs yellow, extreme apex of each femur and tibia, and the tarsi wholly infusate; fore metatarsus two thirds, second foretarsal joint one-third as long as the tibia; tibial spurs about as long as the fourth tarsal joint; empodium distinct, bushy, claws simple. Wings hyaline with a brown, more or less broken zig-zag fascia which arises proximad of the apex of R_1 , extends over the petiole of the media, produced slightly into its fork, narrows behind Cu_1 and reaches Cu_2 where it again slightly widens; a spot at the base of the media which may extend to the cubitus, another at the base of the cubitus, and the entire apex of the wing from the apical half of cell R_2+3 to beyond Cu_1 with a very faint brown cloud, more conspicuous along the course of the veins; R_2+3 very oblique and about as long as the petiole of the media; the distance from the tip of R_1 to R_2+3 is about three-fourths as great as from R_2+3 to R_4+5 . Halteres yellow.

Female. Like the male but the antennæ are a trifle shorter, the yellow of the dorsal sclerites of the abdomen is less extended and the apex of the wing is a little darker. All from Ithaca, New York; June.

LEG MEASUREMENTS.

The table which follows gives the relative lengths of the joints of the legs, the fore tibia being taken as 100. As the measurements were for the most part made upon pinned specimens the values given may not be absolutely exact, due in part to the difficulty experienced in getting the object to be measured in a true horizontal plane. A variation of as much as four or five percent. may be expected in different individuals of the same species, and the proportions in the male differ somewhat from those of the female.

EXPLANATION OF PLATES.

Plate. (Figs. 46 to 69 reduced from Plate I in Johannsen's *Mycetophilidæ, Genera Insectorum*).

- Fig. 46. Head of *Asindulum montanum*.
 " 47. Palpus of *Ceroplatus*.
 " 48. Antenna of *Ceroplatus*.
 " 49. Proboscis of *Asidulum coxale*.
 " 50. Palpus of *Exechia*.
 " 51. Antenna of *Mycetophila*.
 " 52. Antenna of *Cordyla*.
 " 53. Head of *Gnoriste*.
 " 54. Palpus of *Cordyla*.
 " 55. Ventral aspect of mouth parts of *Mycetophila punctata*.
 " 56. *Mycetophila punctata*, female.
 " 57. Tarsal claw of *Mycetophila*.
 " 58. Tarsal claw of *Ceroplatus*.
 " 59. Antenna of *Diomonus*.
 " 60. Tibia and tarsus of *Heteropterna* (after Skuse).
 " 61. Head of *Hadroneura* (after Lundström).
 " 62. Hind tibia of *Exechia*.
 " 63. Dorsal aspect of head of *Mycomya* (*Sciophila* Winnertz).
 " 64. Proboscis and palpi of *Arctoneura* (= *Cyrtoneura*, after Marshall).
 " 65. Dorsal aspect of head of *Diomonus*.
 " 66. Antenna of *Platyroptilon* (after Westwood).
 " 67. Dorsal aspect of head of *Exechia*.
 " 68. Head of *Lygistorrhina* (after Skuse).
 " 69. Frontal aspect of *Leia* (= *Neoglaphyroptera* Osten-Sacken).
 " 70. Diagram of *Palaeoplatyura* wing.
 " 71. " " *Ditomyia* wing.
 " 72. " " *Sciophilinæ* wing.
 " 73. " " *Mycetophilinæ* wing.

Explanation of Abbreviations.—C = Costa; Sc₁ and Sc₂ = anterior and posterior branches of the subcosta; R₁, R₂₊₃, and R₄₊₅ = branches of the radius; Rs = radical sector = R₂₊₃+R₄₊₅; M₁₊₂ and M₃ = branches of the media; Cu₁ and

Cu = branches of the cubitus; A = anal veins; R-M = radio-medial crossvein; M-Cu = medio-cubital crossvein.

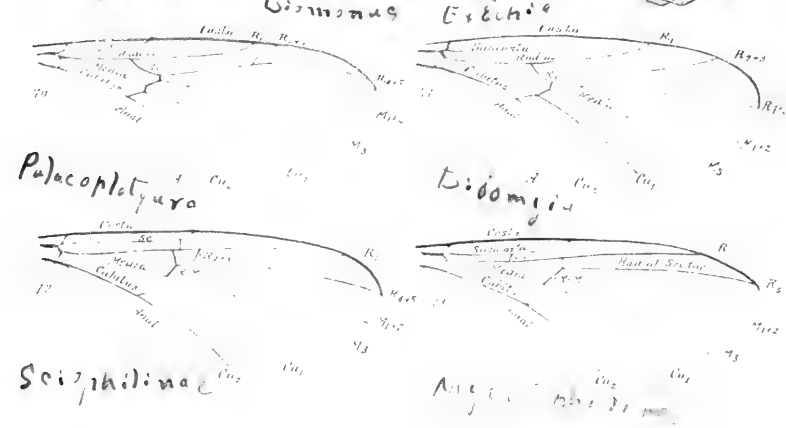
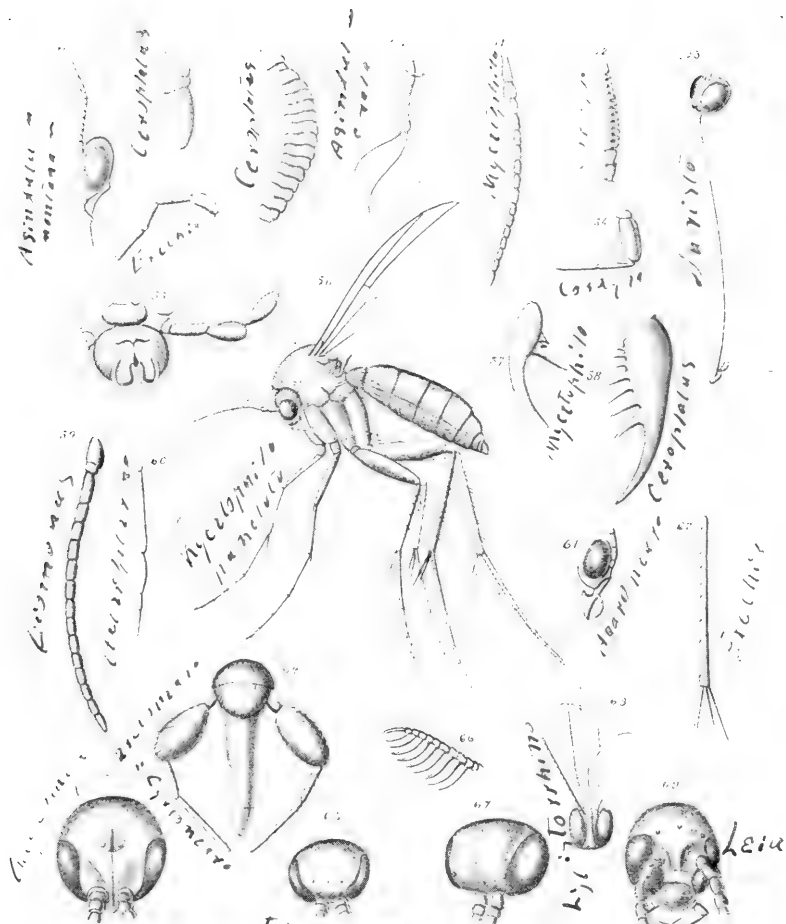
Plate.

- Fig. 74. *Hesperinus brevifrons*.
 " 75. *Bolitophila cinerea*.
 " 76. " *disjuncta*.
 " 77. *Mycetobia divergens*.
 " 78. *Palaeoplatyura johnsoni*.
 " 79. *Mycetophaetus* (after Scudder).
 " 80. *Ditomyia* (after Winnertz).
 " 81. *Symmerus tristis*.
 " 82. *Ceroplatus clausus*.
 " 83. *Cerotelion bellulus*.
 " 84. *Platyura moerens*, male.
 " 85. " *parva*.
 " 86. " *setiger*.
 " 87. *Asindulum montanum*.
 " 88. *Apemon pectoralis*.
 " 89. *Hesperodes* (diagrammatic).
 " 90. *Macrocera clara*.
 " 91. *Diadocidia ferruginosa*.

Plate.

Magnification 65 diameters.

- Fig. 92. *Platyura nigrita*. Lateral aspect.
 " 93. *Macrocera formosa*, var. *indigena*. Dorsal aspect.
 " 94. " *geminata*. Dorsal aspect.
 " 95. *Platyura mendosa* (female). Lateral aspect.
 " 96. " *moerens*. Ventral aspect.
 " 97. *Apemon pectoralis*. Dorsal aspect.
 " 98. *Platyura diluta*. Ventral aspect.
 " 99. " *mendosa*. Dorsal aspect.
 " 100. " *genualis*. Ventral aspect.
 " 101. " *inops*. Ventral aspect.
 " 102. " *fascipennis*, var. *sagax*. Ventral aspect.
 " 103. " *setiger*. Lateral aspect.
 " 104. " *subterminalis*. Ventral aspect.
 " 105. " *scapularis*. Ventral aspect.
 " 106. " *moesta*. Ventral aspect.
 " 107. " *subterminalis*, var. *nexilis*. Ventral aspect.







74 *Leptocryptus*



76 *Leptocryptus*



78 *Leptocryptus*



80 *Leptocryptus*



82 *Leptocryptus*



84 *Platyura*



86 *Platyura*



88 *Platyura*



90

macroptero clare



75 *Boleophila*



77 *Boleophila*



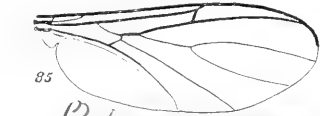
79 *Myctophila*



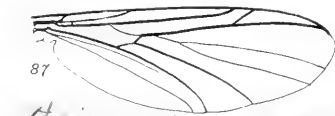
81 *Myctophila*



83 *Myctophila*



85 *Platyura*



87 *Hemiteles*



89 *Hemiteles*



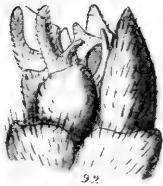
91

Liocryptus

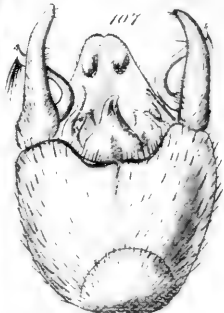
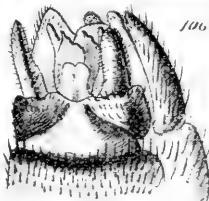
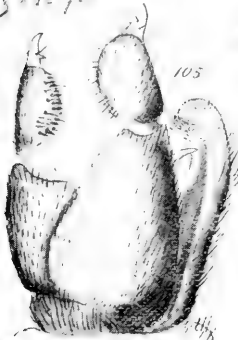
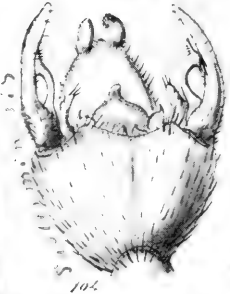
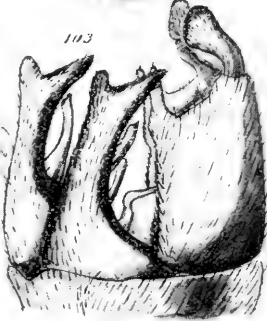
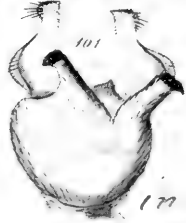
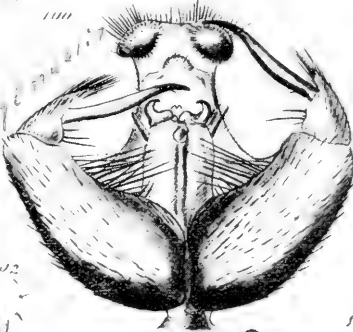
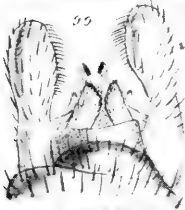


Macropoda
 jamaica
 est. indigena

Macropoda
 jamaica



Apemon pectoralis







Maine Agricultural Experiment Station

ORONO

BULLETIN No. 180.

JUNE 1910

THE FUNGUS GNATS OF NORTH AMERICA.

Part II

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BULLETIN No. 180.

THE MYCETOPHILIDÆ OF NORTH AMERICA.

PART II.*

THE SCIOPHILINÆ.

O. A. JOHANNSEN.

The classification which I adopted in *Genera Insectorum* is followed in this paper; the only exception being that *Neoempheria* is here restored to generic rank. To avoid confusion it may be well to state that *Lasiosoma* Winnertz of earlier writers is replaced by *Sciophila* (Meigen, part, not Winnertz) and *Sciophila* (*in sensu* Winnertz) by *Mycomya* Rondani. In the study of the members of this family alcoholic material is much to be preferred to pinned specimens. Slide mounts are also very useful though the ocelli and the parts of the hypopygium are not so readily discernible.

The subfamily *Sciophilinae* is a compact and easily recognizable group characterized by the presence of a small closed cell (R_1) not far from the middle of the wing (figs. 83-106). The M-Cu crossvein is absent, R_{2+3} is distinct, short, usually nearly transverse, crossvein-like, and bounds distally the small cell R_1 . The ocelli, two or three in number, are remote from the eye margin, except in the genus *Eudicrana*. The hypopygia are complex, diverse in structure and frequently small and inconspicuous.

Habits and Early Stages.

Comparatively little is known of the habits of the *Sciophilinae*. In the paper on "Characters of the larvæ of Mycetophilidæ" by Osten Sacken, is given all that is known concerning the early

*Papers from the Maine Agricultural Experiment, Entomology No. 42. Part I was published in Bulletin No. 172. Where the types of the new species are to be found will be stated in Part III, now in preparation.

stages of the members of this subfamily. He states that the larvæ of *Sciophila* are easily distinguished from those of *Mycetophila* by their more elongate form and their mode of life, as they do not burrow inside of the fungi, but live on the surface, generally on the under side of the pileus, which they cover with a web. Some of them are found on decaying wood, especially when it is covered with *byssus*. The head of the larva is more elongate than in the *Mycetophilinae*; the antennæ are rudimentary; mandibles uniformly thin, slightly concave, with several large indentions and some minute ones in their intervals and on the surface; maxillæ well developed and apparently with a vestigial palpus. The body is 12-segmented, subcylindrical, elongated, almost serpentine, yellowish in color with 8 transverse rows of exceedingly minute ambulacral setulæ on the ventral side of abdomen. The stigmata are small, 8 pairs, one on the first thoracic and seven on the first 7 abdominal segments, the last two having none.

Winnertz records rearing *Neoempheria*, *Empalia* and *Mycomya* from decaying Beech wood, the last also from the fungi *Daedalea quercina*, and *Polyporus*; *Sciophilæ* (*Lasiosoma*) were obtained from the fungi *Hydnum repandum*, *Boletus scaber*, and *Daedalea quercina*.

Table of Genera.

- a. Cubitus not forked (fig. 84); forceps slender (fig. 107).
1. *Monoclona*.
- aa. Cubitus forked.
 - b. Two ocelli, one near each eye margin; petiole of cubitus very short (fig. 83).
2. *Eudicrana*.
 - bb. When only two ocelli are present these closely approximated and widely remote from eye margin; frequently with three ocelli.
 - c. The R-M crossvein long and oblique, appearing like the beginning of a longitudinal vein and much longer than the small transverse basal section of the radial sector (fig. 85).
3. *Tetragoneura*.
 - cc. The crossvein shorter or not much longer than the base of the radial sector.
 - d. The media forks slightly distad of the crossvein but proximad of the fork of the cubitus (fig. 86). (*Lasiosoma* Winn).
✓ 4. *Sciophila*.

dd. The media forks at least the length of the crossvein beyond the latter and distad of the fork of the cubitus.

e. Ocelli widely separated, the middle one distinct and but little if any smaller than the laterals.

f. The subcostal crossvein placed noticeably proximad of the cell R_1 which is three or more times as long as broad, and the subcosta ends in the costa; conspicuous hairs on the wing among the setulae (fig. 87).

Scotellia 6922-III

5. *Paratinia*.

ff. Not with the above combination of characters.

g. R_{4+5} much curved and often undulate, cell R_1 usually shorter than broad, subcosta ends either free or in the costa beyond the cell R_1 (figs. 88-90).

6. *Polylepta*.

gg. R_{4+5} straight or gently arched; the cell R_1 as long or longer than broad (except in *Empalia*).

h. Subcostal crossvein is proximad of the small cell R_1 which is shorter than broad (fig. 91); apex of subcosta may be obliterated.

7. *Empalia*.

hh. Subcostal crossvein, when present, is placed on the cell R_1 .

i. Subcostal vein ends in R_1 ; small cell usually more than twice as long as broad; petiole of the cubitus rather short; middle femur of male without a stout spine at apex.

j. Proboscis prolonged, snout-like (fig. 61, pt. 1); anterior veins unusually heavy (fig. 93).

8. *Hadroneura*.

jj. Proboscis not prolonged; anterior veins only moderately thickened (fig. 92).

9. *Dziedzickia*.

ii. Subcostal vein ends in the costa, small cell less than twice as long as broad; wing with markings (fig. 94); apex of middle femur of male with a stout spine.

10. *Diomonus*.

ee. Ocelli close together, the middle one if present very minute.

f. Wing with bands or markings; costa usually produced beyond the tip of R_{4+5} ; wing usually with a longi-

tudinal fold between radius and media (figs. 95 to 100); eyes usually not emarginate.

- Neonastoneura* / 322-111
Neonastoneura ff. Wing hyaline, without dark fasciæ or spots; costa usually meets R_{4+5} at tip of wing (figs. 101-106); eyes usually emarginate at base of antennæ; *Sciophilila* Winn).
 11. *Neoempheria*.
 12. *Mycomya*.

I. Genus *Monoclona* Mik. *see Goldend 181*

Monoclona, Mik, Wien. Ent. Zeit. V. 279 (15) (1886).

Stageria, Van der Wulp, Tijdschr. v. Ent. XIX. versl. 49 (1876)

Resembles *Sciophilila* (*Lasiosoma*) but differs mainly in having a simple cubitus. Head small, flattened above; eyes oval, slightly emarginate at base of the antennæ; ocelli three, placed high upon the front, widely separated, the middle one but little smaller than the laterals; antennæ projecting forward, arcuated, 2+14 jointed, the basal joints differentiated, cupuliform, the flagellar joints rounded, short haired; palpi incurved, four jointed, apical joint longest, cylindrical. Thorax highly arched, with bristle-like hairs. Abdomen slightly constricted at the base, with seven visible segments, in the male cylindrical, in the female slightly depressed. Legs moderately long, the tibiæ with fine lateral setæ and long spurs; the fore tarsi twice as long as the tibiæ. Halteres large and with elongate knobs. Wings hairy (fig. 84), broad, longer than the abdomen; costa produced beyond the tip of R_{4+5} ; subcosta ends in the costa far distad of the small cell R_1 , this cell short, R-M crossvein a little longer than its distance from the fork of the media; Sc_2 (subcostal crossvein) a little proximad of the small cell; cubitus simple. The genitalia of the male rather slender and elongate, the lateral lobes prolonged, and curved forceps-like (fig. 107).

Monoclona elegantula n. sp.

Male and female. Length 3 mm. Head black, palpi, face, scape of antenna, and the two basal joints of flagellum yellow, the remaining flagellar joints fuscous. Thorax yellow, the mesonotum variable, in one specimen with three confluent blackish stripes, in the others with the lateral stripes dark, the middle one only faintly indicated. In the darkest specimens the scutellum and metanotum are infuscated, in the others these parts are yellow; hairs pale. Each intermediate abdominal segment

yellow with a broad brown fascia which in the darkest specimen covers all but very narrow incisures; in the paler specimens the yellow predominates; the last two or three segments in all the specimens wholly dark brown; venter yellow; hypopygium (fig. 107) dark brown, ovipositor yellow. Legs yellow, tarsi somewhat darker, foremetatarsus eight-tenths, the second fore tarsal joint half as long as the tibia; tarsal claws each with a tooth at the base, empodium prominent, brush-like. Wings (fig. 84) yellowish hyaline, veins dusky yellow; the small cell shorter than wide, trapezoidal, wider on anterior margin, in this respect differing from *M. halterata*. Stem of the halteres yellow, the elongate knob black. In one wing of one specimen R_{2+3} is wanting, thus making a venation exactly like that of *Acnemia*.

Four males and one female taken in August, Ithaca, N. Y. See page 187 for an additional species. (17)

2. Genus *Eudicrana* Loew.

Eudicrana, Loew, Berl. Ent. Zeitschr. XIII, 142. 1869.

Lateral ocelli contiguous to the eye margin, the middle ocellus absent. Legs slender; tibial setæ moderate; spurs long. Wings (fig. 83) large, of moderate width and rather hairy; costa produced beyond the tip of R_{4+5} ; subcostal vein ends in the costa; subcostal crossvein present; basal cell R rather short; cell R_1 elongate; cells in the forks of media and cubitus very long, acuminate at the base, the fork of the latter proximad of the R-M crossvein; second anal strong, long, but not reaching margin of the wing.

Eudicrana obumbrata Loew.

1869. *obumbrata*, Loew, Berl. Ent. Zeitschr. XIII. 141.

Female. Length 6 mm., wing 5 mm. Head fuscous-black, lower half of the face, cheeks and palpi pale yellow. Scape of antenna yellow, the flagellum fuscous-black. Mesonotum, scutellum and metanotum yellow, with the longer and stronger setæ black, the pile, fuscous. Pleura pale yellowish, near the coxæ mottled with black. The first two abdominal segments and the last, black; the remainder maculate with black; ovipositor short, yellow. Coxæ pale yellow, the heavier pile black, the delicate pile, pale. Legs pale yellowish, the tibial spurs and the tarsi fuscous. Wings subcinereous, the apex and the pos-

terior margin with cinereous cloud; subcosta ends in the costa a little proximad of the apex of cell R_1 ; the petiole of the media shorter than this cell; base of the fork of the cubitus under the center of the R-M crossvein. Halteres pale. Recorded from New York.

Male. Length $8\frac{1}{2}$ mm., wing 6 mm. Face wholly yellow, pile of face and eyes yellow, mesonotum with three broad pale brown stripes, covered with fine yellow pile, setæ of humeri and at the base of the wing black; setæ on lateral margins fuscous; dorsal surface of scutellum and metanotum infuscated, setæ of the former short, the latter with an irregular transverse row of long black ones over the base of the abdomen; setæ of posterior part of pleura, long, fine, and pale yellow. The basal half or two-thirds of the second, third, fourth and fifth abdominal segments and the hypopygium (fig. 111) yellow, the remaining parts black, setulæ black on the black parts and yellow elsewhere. Tibial setæ longer than the diameter of the tibiæ, black, and arranged in about four longitudinal rows; one spur on each fore tibia; two on each of middle and hind tibiæ; fore metatarsus one and three-eighths, the second fore tarsal joint two-thirds as long as the tibia; all claws with two teeth each. Brownish cloud covers the apical fourth of the wing (fig. 83); subcosta ends very slightly distad of the cell R_1 . In other respects like the female. One specimen collected by Mr. C. W. Johnson at Capens, Maine, in July.

3. Genus *Tetragoneura* Winnertz.

Tetragoneura, Winnertz, Stett. Ent. Zeit. VII. 18. 1846.

Head spherical, flattened in front, placed low upon the thorax; eyes circular, bulging; ocelli three in number, placed in a curved line upon the broad front, the middle one smaller than the laterals; palpi incurved, four jointed, the first joint very small, the fourth long, filiform; antennæ arcuated, projected forward, 2+14 jointed, the first two differentiated, both long setose at the apex, the flagellar joints cylindrical, slightly compressed, short pilose. Thorax oval, highly arched; scutellum small, truncated behind, long setose; metanotum highly arched. Abdomen seven segmented, cylindrical in the male, with short forceps (fig. 108); in the female somewhat compressed, terminating in an ovipositor with two lamellæ. Legs moderately long; femora compressed, all tibiæ with lateral setæ. Wing (fig. 85) some-

what longer than the abdomen, microscopically setulose, oval, with more or less rounded base; costa produced far beyond the tip of R_{4+5} , but not quite reaching the tip of the wing; subcosta short or long, ending in the costa, or free, or in R_1 ; R_1 ending in the costa beyond the middle of the wing; Sc_2 (subcostal crossvein) usually wanting; the small cell (R_1) somewhat elongate, beyond the middle of the wing; the R-M crossvein elongate, very oblique, almost longitudinal in position, appearing like the beginning of a longitudinal vein; petiole of the media moderately long; cubitus forking either near the base of the wing or somewhat distad of this point; anal veins vestigial. The larvæ have been found in rotten wood and in fungi.

Table of Species.

- a. Subcosta ends in the costa; a fossil species from Colorado.
 - 1. *peritula*.
- aa. Subcosta does not end in the costa; living species.
 - b. Subcosta vestigial, ends free (fig. 85) thorax and abdomen shining black.
 - 2. *nitida*.
 - bb. Subcosta ends in R_1 nearly midway between humeral crossvein and the base of the radial sector.
 - c. Abdomen yellow; cubitus forks near its base.
 - N. H.
 - 3. *bicolor*.
 - cc. Abdomen brown, posterior margins of second and following segments yellow; cubitus forks at a point nearly opposite the proximal end of the R-M crossvein. Pa.
 - 4. *pimpla*.

1. *Tetragoneura peritula* Cockerell.

1909. *peritula*, Cockerell, Amer. Jour. Science XXVII, 53.


A fossil species from the Florissant, Colorado.

2. *Tetragoneura nitida* Adams.

1903. *nitida*, Adams, Kan. Univ. Science Bul. II. 23.

Female. Length 2.7 mm. Black, shining; head black, front bearing yellow pile, antennæ dark brown, first two joints and palpi yellowish; mesonotum black, shining, pile yellow, bristles on margins black, scutellum black, bristles yellow, metanotum and pleura black, halteres yellow, abdomen wholly shining black, pile yellow; legs yellow, with tip of hind femora, middle and hind tibiæ and all tarsi brown; wings hyaline, tinged with brown on the anterior part, subcosta short, ending free, the

furcation of the cubitus is nearly opposite to the proximal end of the R-M crossvein. Recorded from Missouri (May).

Male. Wing shown in figure 85. Differs from female only in having yellow and black setæ on the margin of the mesonotum; the trochanters are margined with black. The fore metatarsus is two-thirds, the second fore tarsal joint one-third as long as the tibia; the hypopygium is minute and very inconspicuous (fig. 108). A single specimen from L. Toxaway, N. C. 


3. *Tetragoneura bicolor* Coquillett.

1901. *bicolor*, Coquillett, Proc. U. S. Nat. Mus. XXIII. 595.

Female. Length 3.5 mm. Head black, first two joints of antennæ and the mouth parts yellow, remainder of antennæ dark brown; thorax and scutellum black, somewhat polished, the hairs reddish brown and black; abdomen yellow, its hairs also yellow; halteres, coxæ, femora, and tibiæ yellow, apices of tarsi brownish yellow; wings hyaline, subcostal vein ending in R_1 about midway between the humeral crossvein and base of the radial sector; cubitus forking close to its base; length 3.5 mm. N. H.

4. *Tetragoneura pimpla* Coquillett.

1901. *pimpla*, Coquillett, Proc. U. S. Nat. Mus. XXIII. 595.

Female. Length 4.5 mm. Head black, base of antennæ and mouth parts yellow; body brown, two indistinct vittæ and lateral margins of mesonotum, a spot above front coxæ, posterior margins of second and following abdominal segments, and the genitalia, yellow; hairs and bristles of thorax black, those of abdomen chiefly yellowish brown; coxæ and femora yellow, tibiæ and tarsi brownish yellow, halteres yellow; wings grayish hyaline, the subcostal vein ends in R_1 nearly midway between the humeral crossvein and base of the radial sector, cubitus forks near its middle, at a point almost opposite the union of the small crossvein with the media. Pennsylvania. 

4. Genus *Sciophila* Meigen.

Sciophila, Meigen, Syst. Besch. I. 245. 1818.

Sciophila, Rondani, (nec Winnertz), Dipt. Ital. Prodr. I. 194. 1856.

Lasiosoma, Winnertz, Verh. Zool-bot. Ges. Wien. XIII. 748. 1863.

The name *Sciophila* is used here in the sense of Rondani (1856) and includes all the species classified by Winnertz (1863) in the genus *Lasisoma*, the latter thus becoming a synonym of the former. The species which Winnertz placed in *Sciophila* are transferred to *Mycomya*, Rondani, where they rightfully belong.

Head small, spherical, flattened in front, placed low upon the thorax; eyes oval, slightly emarginate at the base of the antennæ, almost reniform; ocelli three in number, arranged in a flattened triangle upon the broad front or more rarely upon the vertex, the middle one only slightly smaller than the laterals; palpi incurved, four jointed, the first joint very small, the second and third subequal, the last longer than the others taken together; antennæ projecting forward, arcuated, somewhat compressed, 2+14 jointed, the two basal joints cupuliform, hairy. Thorax oval, highly arched mesonotum long and thickly haired, not setose; scutellum very small; halteres with short petiole and elongate knob. Abdomen with seven visible segments, cylindrical, somewhat constricted at the base, hairy, in the male with blunt extremity and small forceps (fig. 110, 117). Legs moderately long; the tarsi of the fore legs double the length or rarely more than double the length of the tibiæ. The tibiæ with spurs and with lateral setæ, the fore pair with one or two, the middle pair with three and the hind pair with four rows, the inner row with only few and weak setæ. Wings elongate oval, with rounded base, longer than the abdomen, hairy, hairs sometimes visible with the naked eye. The costa produced far beyond the tip of R_{4+5} , but not reaching the tip of the wing; the subcosta usually extends distad of the small cell and ends in the costa; the cell R_1 very small and usually rectangular; the media forks at or but very little distad of the R-M crossvein; the cubitus forks noticeably distad of the fork of the media; the anal vein incomplete, ending far from the margin of the wing (fig. 86).

These flies are prevalent in Spring and Fall; the larvæ live in rotten wood and in fungi.

Table of Species.

- a. Wing 2.40 (or less) times as long as the fore tibia; yellow species.
- b. Halteres luteous; subcosta ends at least the length of the crossvein beyond the latter; female.
 - 11. *similis* n. sp.
- bb. Halteres with black knob; inferior forceps of hypopygium (fig. 110) with very short, stout, blunt spines, no palmate spines (compare 12 *fasciata* Say).
- c. Subcostal crossvein at distal end of small cell.
 - 2. *glabana* n. sp.
- cc. Subcostal crossvein near middle of small cell.
 - d. Small cell (R_1) about one and one-half times as long as wide.
 - 2a. *glabana*; var. *germana*, n. var.
 - dd. Small cell about twice as long as wide; subcosta ends less than the length of the small cell beyond the latter.
 - 2b. *glabana*; var. *socia*, n. var.
- aa. Wing 2.75 (or more) times as long as the fore tibia.
 - b. Small species 2.75 mm. in length; thorax yellow, with three blackish stripes confluent posteriorly, abdominal segments fasciate; inferior forceps lobular, apically with a number of long setæ, convex basal part with palmate spines (fig. 115).
 - 3. *nugax* n. sp.
 - bb. Larger species, over three mm. long; inferior forceps with two long blunt spines directed mesad (fig. 117).
 - c. Thorax mainly yellow, dorsum sometimes with faint indications of fuscous stripes.
 - d. Subcostal crossvein inserted at the base of small cell R_1 .
 - e. Dorsal plate of hypopygium produced into a serrate spur, with 3 or 4 long setæ (fig. 109); inferior forceps with 2 long blunt spines on dorsal surface; superior forceps, slender, curved (fig. 109a); abdomen fasciate.
 - 4. *habilis* n. sp.

- ee. Dorsal plate of hypopygium slightly emarginate, with 2 long, slightly and sparsely plumose setæ (similar to fig. 117); superior forceps not produced beyond the margin of the dorsal plate; inferior forceps with 3 long blunt spines (similar to fig. 119s); abdomen subfuscous, nearly unicolored. 5. *incallida* n. sp.
- dd. Subcostal crossvein inserted at the middle of small cell R₁. 1. *quadratura*.
- cc. Thorax mainly dark.
 - d. Superior forceps curved, large, broadened at the end (fig. 113a), inferior forceps with 2 dorsal spines and 1 very strong ventral, laterally directed spine (fig. 113b). 6. *hebes* n. sp.
 - dd. Superior forceps hidden; no strong spine on ventral surface of inferior forceps.
 - e. With 3 blunt spines (s) on dorsal lobe of inferior forceps (fig. 119). 7. *novata* n. sp.
 - ee. With 2 blunt spines (s) on dorsal lobe of inferior forceps (fig. 116).
 - f. Margin of dorsal plate of hypopygium with 8 to 10 slightly plumose setæ, sometimes directed inwards; dorsal lobe of inferior forceps with its 2 blunt spines, strongly developed (fig. 116s). Western species. 8. *impar*. n. sp.
 - ff. Margin of dorsal plate with fewer plumose setæ.
 - g. Thorax fuscous, pleura brownish; margin of dorsal plate of hypopygium with no plumose setæ. 9. *severa* n. sp.
 - gg. Pleura blackish; margin of dorsal plate with 2 sparsely plumose setæ (similar to fig. 117s), (compare 13 *hirta* Meigen and *Poly-lepta grisea* Walker). 10. *pallipes* Say.

Sciophila fasciata Say (12), *Sciophila popocatepetli* Bell. (14), and *Sciophila (Lasiosoma) hirta* Meigen (13) are not included in the above table. The two former may not even belong to this genus; the latter, reported from Greenland, may be distinguished from *S. pallipes* by its wholly black antenna and scape. *Sciophila grisea* Walker may be a *Polylepta*, though as likely may be a synonym of *S. pallipes* Say. *S. mirandula* Cockerell is a fossil species from Colorado.

1. *Sciophila quadratula* Loew.

1869. *quadratula*, Loew, Berl. Ent. Zeitschr. XIII. 141
(*Lasiosoma*).

Female. Length 3 mm.; wing 2.8 mm. Luteous, clothed with pale pile. Head and flagella of antennæ fuscous black, scape reddish, palpi pale yellowish. Mesonotum not vittate, metathorax more or less fuscous. Abdomen fuscous black, the posterior margin of each segment more or less pale, the apex of abdomen luteous. Legs and coxæ yellowish, the tarsi except the base, fuscous, the more slender veins paler; cell R_1 small, quadrate, the subcostal crossvein placed at the middle; the furcation of the media about opposite the apex of the subcosta. Halteres yellowish. Recorded from Maine. After examining the type I may add that the wing is over three times as long as the fore tibia, the distance from the humeral crossvein to the subcostal crossvein is about 2-3 greater than from the latter to the tip of the subcosta, and that the cubitus forks proximad of the tip of the subcosta.

2. *Sciophila glabana* n. sp.

Male. Length 5.5 mm.; wing 4 mm. Head reddish, infuscated, especially around the ocelli; face, palpi, and scape of the antenna yellow, flagellum fuscous, intermediate joints over 1.5 times as long as wide, ocelli in a transverse line. Thorax yellow, with a minute brown spot at the root of the wing; setæ yellow. Abdominal segments brown with both the anterior and posterior margins yellow; hypopygium shining yellow, the blunt spines of the inferior forceps fuscous; terminal flap of dorsal plate provided with 6 strong marginal and several distal setæ (fig. 122); superior forceps slender, somewhat curved and each limb with a strong terminal seta; the inferior forceps short, ovate, the apex with a number of stout, blunt but short spines

(fig. 110). Coxæ and legs yellow, trochanters with black tips, tarsi subfuscous, empodium bushy; each claw with a single tooth; setæ of fore and middle tibiæ very small, sparse, those of the hind tibiæ on the lateral and extensor surfaces about 6 or 7 in each row, the longest about as long as the diameter of the tibia; fore metatarsus and tibia subequal, the second tarsal joint about 0.6 as long. Wings yellowish hyaline, veins brownish yellow; the distance from the humeral crossvein to the subcostal crossvein 4 times as great as from the latter to the tip of the subcosta; the subcostal crossvein is placed near the distal end of cell R_1 , the latter is about 1.5 times as long as wide; petiole of the media is about 0.5 as long as the R-M crossvein; the cubitus forks a very little distad of the tip of the subcosta; anal vein incomplete, but strong. Halteres yellow, with a black knob. Ithaca, New York; Polk Co., Wisconsin.

Var germana n. var. In one male from Polk Co., Wisconsin, collected in July by Professor Wheeler, the crossvein is near the middle of the small cell.

Var. socia n. var. Several male specimens from Burlington, Vermont, collected in June by Mr. C. W. Johnson, have similar hypopygium, structure and markings, but the small cell is about twice as long as wide; the subcostal crossvein is placed distad of the middle, the tip of the subcosta thus ending but little beyond the distal end of this cell. A female from Boston also belongs here.

Some female specimens from Milwaukee, Wisconsin, do not differ from *Var. germana* except that there are indications of three slender brownish lines on the mesonotum.

3. *Sciophila nugax* n. sp.

Male. Length 2.75 mm.; wing 2.5 mm. Head fuscous, antennæ fuscous apically, basal joints, face, mouth parts and palpi yellow; hairs of head and antennæ yellow, intermediate antennal joints over 1.5 times longer than wide. Thorax yellow, subshining, mesonotum with 3 brownish longitudinal stripes, abbreviated and paler anteriorly, dark, converging and almost meeting posteriorly just in front of scutellum; metanotum brownish, thoracic hairs yellow. Abdomen reddish yellow, median transverse fascia on the intermediate segments black, posterior segments more blackish; hypopygium yellow. Dorsal plate of hypopygium (appendix externa) triangular in outline; apical

angle acute, setose; superior forceps much reduced, claw-like and hidden under the dorsal plate; inferior forceps lobular, apex fleshy with a score of long setæ ranged along the side, three long setæ near the base of this part, the convex part provided with about 20 small palmate spines, the ventral aspect setose (fig. 115). Coxæ yellow, trochanters tipped with black, legs yellow, tarsi slightly darker; fore tibiæ with 3 or 4 very small setæ on flexor surface; middle tibiæ with 3 or 4 on flexor surface, and 4 or 5 both inwardly and outwardly on extensor surface; hind tibia with 3 or 4 on inner lateral surface, 4 on inner extensor surface, about 12 on outer extensor surface in 2 rows, the longest about as long as the diameter of the tibia; empodium bushy; claws each with a single tooth; fore metatarsus and tibia subequal, the second fore tarsal joint half as long. Wings yellowish hyaline, veins yellowish; distance from the subcostal crossvein to the apex of the subcosta is about 0.6 as far as from the humeral to subcostal crossvein; the latter stands on the basal third of the small cell which is slightly longer than broad; the petiole of the media is about as long as the R-M crossvein; the cubitus forks slightly distad of the end of the subcosta; anal vein long, incomplete, delicate. Halteres yellow. Ithaca, New York, August.

A defective male specimen from Price Co., Wisconsin, collected in August by Professor Wheeler, probably also belongs

4. *Sciophila habilis* n. sp.

Male. Length 4 mm.; wing 3 mm. Head black, antennæ fuscous, yellow at the base, face, proboscis and palpi dusky yellow to subfuscous, hairs yellow; intermediate antennal joints one and one-half times as long as broad. Thorax wholly yellow with only a small spot at base of metanotum and some small specks on pleural sutures, blackish; hairs yellow. The first and second abdominal segments, the posterior margins of the third and fourth dorsally and basal half of venter yellow, remaining parts including hypopygium black; hairs yellow, mingled with black hairs posteriorly. Hypopygium of the *pallipes* type, the dorsal lobe of the inferior forceps (resembling those of fig. 117) with about 18 palmate spines and 2 blunt dorsal spines, the superior forceps (fig. 109) slender, much curved, the dorsal plate (appendix externa) prolonged into a serrate spur with 3 or 4 strong setæ which are branched (almost pal-

mate) near the tip. Coxæ yellow, trochanters with conspicuous black spot at the tip, legs yellow, tarsi somewhat infuscated. Flexor surface of fore tibiæ with about 8 black setæ; middle tibia with about 6 on the flexor surface, 6 on extensor surface inwardly, and 4 longer ones outwardly, the last nearly as long as the diameter of the tibia; hind legs with 4 on inner lateral surface, 8 on inner extensor surface, about 12 on outer extensor surface in 2 rows, the longest a little longer than the diameter of the tibia; empodium bushy; claws each with a single tooth; fore metatarsus about 0.9, the second tarsal joint about 0.5, the wing about 3 times as long as the tibia. Wings yellowish hyaline, veins dusky yellow; distance from humeral crossvein to the subcostal crossvein about 0.2 greater than the distance from the latter to the tip of the subcosta; small cell nearly rectangular, shorter than wide; the subcostal crossvein inserted at the base of this cell; petiole of the media about as long as the R-M crossvein; cubitus forks slightly distad of the tip of the subcosta; anal vein strong though incomplete. Halteres yellow. Ithaca, New York.

Female. Differs in having paler antennæ; abdomen with markings paler brown and less extensive.

5. *Sciophila incallida* n. sp.

Male. Length $3\frac{1}{2}$ to 4 mm. Yellowish. Thorax pale yellow, mesonotum an infuscated disk with indications of three longitudinal stripes; abdomen nearly unicolored dusky yellow to brownish; legs pale yellow; fore metatarsus 0.9, the wing 3 times as long as the fore tibia; wing venation and hypopygium as in *S. novata*, the hypopygium differing only in having 22 to 24 palmate spines on the dorsal lobe of the forceps. Ithaca, New York.

6. *Sciophila hebes* n. sp.

Male. Length 4 mm. Subshining brownish black, the 2 basal joints of antennæ, coxæ, trochanters, legs and halteres yellow; tips of trochanters and apices of tarsi dusky. Body hairs yellow, setæ of legs black. Intermediate antennal joints about 1.5 times as long as wide. Margin of the dorsal plate of the hypopygium is convex with 4 longer sparsely feathered setæ, besides the usual shorter setæ; superior forceps are much curved, ends broadened, spoon shaped (113a) and without setæ;

each member of the inferior forceps (fig. 113) have the usual pair of mesad projecting spines, the usual pair of dorsal spines, a single very stout ventral, outward projecting spine (b) and a hood surmounted by 40 or 50 palmate spines. Fore tibia with 2 or 3 very small setæ on outer side; middle tibiæ with 4 on outer and 4 on inner extensor surface; hind tibia with 12 to 15 in 3 irregular rows on extensor surface; empodium brush-like; each claw with a single tooth; the second fore tarsal joint about half as long, the fore metatarsus subequal to the tibia in length. Wings hyaline, yellowish tinged, veins yellowish brown; subcostal crossvein placed at the base of the small cell, which is slightly shorter than broad, the distance of the humeral crossvein to the subcostal crossvein is 1.25 times as great as from the latter to the apex of the costa; cubitus forks under or very slightly proximad of tip of subcosta; anal vein strong but incomplete. Length of wing $3\frac{1}{2}$ mm. Kingston, R. I., in May (Barlow); Lawrence, Kas. (Aldrich).

7. *Sciophila novata* n. sp.

Male. Length 4 mm. Subshining brownish black, halteres and legs including coxæ, yellow, body hairs yellow, basal joints of antennæ rather paler than the remainder. Fore metatarsus 15-16 as long as the tibia. Dorsal plate of the hypopygium (fig. 117) with a slightly emarginate posterior border and with a pair of long setæ (s) very sparsely feathered; superior forceps acute, much reduced, not produced beyond the dorsal plate; dorsal lobe of the inferior forceps (fig. 119) with 3 long slender but blunt spines (s) and 16 to 18 palmate spines arranged in more or less of a spiral, those outermost much longer and less crowded than the others; no stout spine on ventral side. Wing yellowish hyaline, veins yellowish; subcosta ends slightly proximad of the fork of the cubitus; the distance from the humeral crossvein to the subcostal crossvein about 1.25 times as far as from the latter to the apex of the subcosta; subcostal crossvein is placed close to the base of the small cell which is slightly longer than the R-M crossvein; anal vein strong but incomplete. Ithaca, N. Y., May. Several specimens.

8. *Sciophila impar* n. sp.

Male. Length 3.5 to 4 mm. Subshining brownish black, the two basal joints of antennæ, coxæ, trochanters (excepting their black apices) legs and halteres yellow. Body hairs yel-

low, setæ of the legs black. Intermediate antennal joints about 1.5 times as long as wide. Hypopygium resembles that of *S. novata* but the dorsal plate differs in having a convex margin with 8 to 10 long, curved, finely but sparsely pubescent setæ and in having the dorsal process of the inferior forceps much more strongly developed (fig. 116). Fore tibia has 1 or 2 small setæ outwardly, and 3 or 4 on flexor surface; middle tibia with 3 or 4 on inner and 1 on outer extensor surface, and 3 or 4 on outer flexor surface; hind tibia with 6 or 8 on inner and outer extensor surface; empodium brush-like, each claw with a single tooth; fore metatarsus is about 1-6 shorter than the tibia, the second tarsal joint about half as long. Wings hyaline, yellowish tinged, veins yellowish brown; the subcostal crossvein placed at or slightly before middle of the small cell R_1 which is about as long as broad, the distance from the humeral crossvein to the subcostal crossvein is twice as great as from the latter to the tip of the subcosta; the cubitus forks slightly distad of the tip of the subcosta; anal vein strong but incomplete. Length of wing is 3 mm., which is over 3 times as long as the fore tibia.

Female. Like the male but the ratio of wing to tibia slightly greater. Specimens taken in September at Jackson Lake, Wyoming, by Prof. W. M. Wheeler.

A male from Black Rock Creek, Wyoming, (Wheeler) and a female from Friday Harbor, Washington, (Aldrich) have the subcostal crossvein at the base of the small cell, and by transmitted light the abdomen has a yellowish tinge, otherwise as above.

9. *Sciophila severa* n. sp.

Male. Length 3.5 mm. In coloring like *S. hebes* but with rather more brownish thorax. Intermediate antennal joints about 1.5 times as long as broad. Dorsal plate of the hypopygium with slightly emarginate border but no plumose setæ; superior forceps somewhat curved with acute apex, only slightly projecting beyond the margin of the dorsal plate; inferior forceps (shown in fig. 112 with the dorsal lobe folded out) with 25 to 30 palmate spines on the dorsal lobe of which 4 or 5 are separated from the others; 2 slender dorsal spines (s), the stout spine on the ventral surface of the forceps of *S. hebes* is wanting in this species. Setæ of the legs as in *S. hebes*; fore metatarsus nearly a tenth shorter, the second tarsal joint slightly

over half as long as the tibia. Wing hyaline, yellowish tinged, veins yellowish brown; the subcostal crossvein is placed at the base of the small cell, which is slightly shorter than broad; the distance from the humeral crossvein to the subcostal crossvein is about 1.25 times as great as from the latter to the tip of the subcosta; the cubitus forks slightly distad of the tip of the subcosta; anal vein incomplete, delicate. Length of wing is 3 mm., which is nearly three times as long as the fore tibia. Ithaca, New York; July.

10. *Sciophila pallipes* Say.

1824. *pallipes*, Say, Long's Exp. St. Peter's River. App. 361.

1878. *pallipes*, Osten Sacken, Catalog. of Diptera. (*Lasiosoma*).

Male. Length 3.5 mm. Scape of the antennæ, halteres, femora and tibiæ yellow, tarsi brownish, remaining parts shining brownish black, body hairs yellow. Fore metatarsus about 1-16 shorter, the second tarsal joint about 0.5, the wing 3 times as long as the tibia. Hypopygium is like that of *S. novata* but the dorsal lobe of each branch of the inferior forceps has 2 slender blunt spines and 28 to 30 palmate spines. The distance from the humeral crossvein to the crossvein is 1.6 times as great as from the latter to the tip of the subcosta; the subcostal crossvein is situated near the base of the small cell which is about as long as wide; petiole of the media is shorter than the R-M crossvein; the cubitus forks under or slightly proximad of the tip of the subcosta; anal vein is stout but incomplete. This species has been recorded by Say from the "Northwest Territory." My specimens were taken at Ithaca, New York, and Orono, Maine. The species has also been recorded from New Hampshire.

11. *Sciophila similis* n. sp.

Female. Length 5 mm.; wing 4.5 mm. Front and flagellum of antenna brown; scape, face, proboscis and palpi yellow; hairs yellow. Thorax yellow, without stripes; hairs yellow. Abdomen with the basal half and the narrow apical margin of each segment yellow, intervening space brown, hairs and ovipositor yellow. Legs yellow, tarsi slightly darker; fore metatarsus about 1-12 shorter than the tibia. The wing is less than 2.4 times as long as the fore tibia; yellowish hyaline; the distance from the humeral crossvein to the subcostal crossvein is

over 3 times as long as from the latter to the tip of the subcosta; the subcostal crossvein is situated slightly proximad of the middle of the small cell R_1 , which is about 1.5 times as long as wide; the petiole of the media is less than half as long as the R-M crossvein; the strong anal vein ends about opposite the fork of the cubitus and slightly distad of the apex of the subcosta. Halteres yellow.

One specimen. Rigaud, Canada. June 25.

12. *Sciophila fasciata* Say.

1823. *fasciata*, Say, Journ. Ac. Phil. III. 26.

1878. *fasciata*, Osten Sacken, Catalog. Diptera. (*Lasiosoma*).

Length 6 mm. Yellow species; antennæ yellowish, brown apically; vertex brown. Mesonotum with pale brown longitudinally divided median stripe narrowed and abbreviated posteriorly; lateral stripes reddish brown abbreviated anteriorly; over the base of the wing with another smaller and less conspicuous stripe; pleura with a brown spot over each coxa, these spots arranged in a triangle, the lowest itself triangular. Abdominal segments with brown posterior margins. Wing slightly yellowish. Tibiæ and tarsi slightly infuscated. Recorded from Pennsylvania, Maryland, and New Mexico.

13. *Sciophila hirta* Meigen.

1818. *hirta*, Meigen. Syst. Besch. I. 251.

1863. *hirta*, Winnertz, Verh. Zool.-bot. Ges. Wien. XIII. 749 (*Lasiosoma*).

Male and female. Length 3 to 4.5 mm. Shining black, or fuscous, including antennæ, palpi and tarsi; halteres, coxæ, legs, and body hairs yellow. Wings fuscous tinged; cell R_1 small, square; subcostal crossvein placed at or slightly proximad of the middle of this cell. Fore metatarsus 13-16 as long as the tibia.

This form which has been recorded from Greenland may be distinguished from other dark colored species by its wholly black antennæ, and by the location of the subcostal crossvein with respect to the small cell.

14. *Sciophila popocatepetli* Bellardi.

1859. *popocatepetli*, Bellardi, Saggio di Ditt. Messicana. I. 211.

Female. Length 6 mm., expanse of wings 17 mm. Black, cinereous pollinose; humeri, lateral stripes and obsolete spot at

base of the wing, posterior margin of thorax, pleura and sternum, lutescent; the last two with cinereous; thoracic setæ fine, black, and numerous, but not long, scutellar setæ long and black. Abdominal tergites with lutescent posterior margins. Legs fuscous, darker apically. Wings scarcely grayish, stigma fuscous; cell R_1 square, small, the bounding veins black and thickened. Halteres yellow, knob scarcely infuscated.

Mt. Popocatepetli, Mexico, altitude 3,800 meters. The description is insufficient for positive generic reference, but the numerous thoracic setæ and small cell R_1 suggest *Sciophila* (*Lasiósoma*).

Genus *Paratinia* Mik.

Paratinia. Mik, Verh. Zool.-bot. Ges. Wien, XXIV. 333. 1874.

Head placed low upon the thorax; palpi incurved, 4 jointed, the basal joint very short, the third and fourth cylindrical; eyes oval, somewhat emarginate at the base of the antennæ; ocelli 3 in number, arranged in a transverse line on the front, the middle one but little smaller than the laterals; antennæ projecting forward, 2+14 jointed, the basal joints very small, cupuliform, the flagellar joints cylindrical, sessile, the joints gradually diminishing in length from the base to the tip. Thorax very highly arched, metanotum steep, scutellum small and without long setæ. Abdomen long and slender, 7 segmented. Wing broad, with rather long hairs, especially apically, besides the usual setulæ; costa produced beyond the tip R_{4+5} ; subcosta ending in the costa proximad of the middle of the small cell R_1 , this cell much longer than broad; Sc_2 (subcostal crossvein) proximad of the small cell R_1 ; the petiole of the fork of the media about half as long as the anterior branch; the cubitus forks proximad of the fork of the media; anal vein delicate and incomplete (fig. 87). Legs long; tibial setæ very delicate or wanting, the spurs long.

The members of this genus may be distinguished from *Mycomya* by the widely separated ocelli of which the middle one is quite distinct; from the other *Sciophilinæ* they may be separated by the wing venation.

Paratinia recurva n. sp.

Male. Length 5 mm. Head fuscous, transversely oval, somewhat flattened in front, hairy; ocelli 3 in number arranged in a nearly straight transverse line on the broad vertex; mouth

parts fuscous; antennæ much longer than the head and thorax, pale yellow, the joints of the scape nearly spherical, fuscous, first flagellar joint over 5 times as long as wide, the following joints gradually decreasing in length. Thorax ochraceous, with 5 faintly brown longitudinal stripes, the middle one abbreviated behind, the next pair converging posteriorly, the outer pair abbreviated anteriorly; upon these lines are arranged hair-like setæ, those over the base of the wing and on the scutellum longest; pleura, sternum and metanotum brownish, nearly bare. Abdomen brown, posterior markings of the segments yellowish, hairs short, yellow; the abdomen long, slightly thickened apically, hypopygium (fig. 124) small. Coxæ and legs long, yellow, the tibia and tarsi somewhat darker, due mainly to the presence of brownish hairs; no lateral tibial setæ, tarsi sparsely ciliated with very short and fine dark setæ; spurs pale yellow, little less than twice as long as diameter of the tibia at the apex; claws very small, apparently with only a single fine tooth near middle; empodium brushlike; fore metatarsus 0.9, the second fore tarsal joint 0.32 as long as the tibia. Wings hyaline, large, broad, longer than the abdomen, with long hair, especially apically, among the usual minute setulæ; veins yellowish brown; costa (fig. 87) ends at the tip of the wing and beyond the tip of R_{4+5} , which is much arched; cell R_1 about 5 times as long as wide; subcosta ends about opposite the proximal end of the small cell; the subcostal crossvein is nearly the length of the small cell proximad of the apex of the subcosta; media forks slightly proximad of the apical end of the small cell, and the cubitus forks slightly distad of its base; anal vein not strong, ends a little distad of the fork of the cubitus. The figure 87 shows the wing slightly foreshortened. Halteres long, infuscated; knob ovate, its base and tip more yellowish.

One specimen from Old Forge, New York, collected by Professor Needham in August.

6. Genus *Polylepta* Winnertz.

Polylepta, Winnertz, Verh. Zool.-bot. Ges. Wien. XIII. 745. 1863.

Head small, flattened in front, placed low upon the thorax; eyes oval, somewhat emarginate at the base of the antennæ; ocelli 3 in number, placed in a more or less curved line on the

broad front, the middle one smaller than the laterals; palpi incurved, 4 jointed, the first joint very small, the second and third subequal, the last one longer than the others taken together; antennæ projecting forward, somewhat compressed, 2+14 jointed, the basal joints cupuliform, the flagellar joints cylindrical; pubescent. Thorax very short, highly arched; metanotum high, scutellum small; halteres with elongate knob. Abdomen long and slender; in the male somewhat clavate; genitalia small (figs. 118, 121), abdomen in the female cylindrical, constricted at the base, 7 segmented. Legs long, tibiæ with spurs and with lateral setæ. Wings elongate oval, not longer than the abdomen, microscopic hairy. The costa is usually produced beyond the tip of R_{4+5} and nearly or quite reaches the tip of the wing; subcosta ends free or beyond the small cell R_1 , which is usually shorter than wide, and noticeably proximad of the middle of the wing; R_{4+5} much curved or undulate, petiole of the media much longer than the R-M crossvein; the cubitus forks proximad of the fork of the media; anal vein incomplete (figs. 88-90). Immature stages unknown.

It seems to me that the characters used to separate *Empalia* from *Polylepta* are scarcely sufficient to give these independent generic rank.

Table of Species.

- a. Subcosta ends free.
 - b. Subcostal crossvein stands on the small cell, which is about twice as long as wide; Mass. 1. *fragilis*.
 - bb. Subcostal crossvein is far proximad of the small cell; N. H., Ind. (fig. 90). 2. *leptogaster*.
- aa. Subcosta ends in the costa.
 - b. Subcosta ends more than the length of the R-M crossvein distad of the small cell; cubitus forks distad of R_{2+3} (fig. 88). 3. *obediens* n. sp.
 - bb. Subcosta ends opposite the distal end of the small cell; cubitus forks proximad of the R-M crossvein (fig. 89). 4. *nigellus* n. sp.

For *P. tibialis* Coq. see genus *Empalia*. Walker's species *P. grisca* (5) is not sufficiently well described to place generically. I suspect it is the same as *Sciophila pallipes* Say.

1. *Polylepta fragilis* Loew.1869. *fragilis*, Loew, Berl. Ent. Zeitschr. XIII. 138.

Female. Length 4 mm. Fuscous black, slightly white pollinose, subopaque. Antennæ fuscous black, the scape and the extreme base of the flagellum yellowish, the first joint of the former fuscous above; palpi yellow; ocelli arranged in a flattened triangle. Coxæ and legs yellow, the tarsi except their bases, fuscous. Wings subhyaline, cinereous fuscous tinted; veins fuscous; costa not produced beyond the tip of R_{4+5} ; cell R_1 nearly twice as long as wide, the subcostal crossvein placed at the middle of the anterior margin of this cell; subcosta is strong from the base of the wing to the crossvein, then abruptly interrupted; petiole of the media a little shorter than M_1 but over twice as long as the cell R_1 ; cubitus forks distad of the R-M crossvein; R_{4+5} noticeably undulating. Halteres pale. Recorded from Massachusetts.

2. *Polylepta leptogaster* Winnertz.1863. *leptogaster*, Winnertz, Verh. Zool.-bot. Ges. XIII. 746.

Female. Length 4.5 mm. Body brown. Margin of the mouth produced and bordered with hairs. The filiform antennæ 1-3 times as long as head and thorax combined, the flagellar joints 3 to 4 times as long as broad. Abdomen very slender, cylindrical, 5 to 6 times as long as the very short thorax, constricted at the base. Coxæ and femora yellow, tibia slightly darker, tarsi pale brown. Fore tarsus 2-3 times as long as the tibia, the latter about 1-16 shorter than the metatarsus. Wings hyaline, somewhat cinereous tinged. costa (fig. 90) produced beyond R_{4+5} to the apex of the wing; subcosta ends free proximad of the R-M crossvein; the subcostal crossvein far retracted, cell R_1 trapezoidal, $1\frac{1}{2}$ to 2 times as long as broad; petiole of the media about half as long as M_1 ; cubitus forks distad of the small cell; anal vein slender, incomplete. Halteres whitish, with fuscous knob. Recorded from N. H. and Indiana.

3. *Polylepta obediens* n. sp.

Male. Length 5 mm. Head black; proboscis reddish; palpi and basal joint of antennæ yellow, face and flagellum fuscous, the intermediate joints of the latter about $\frac{1}{4}$ longer than the diameter. Mesonotum opaque with 3 dull dark brown confluent

ent stripes; pleura, metanotum and scutellum brown; humeri, base of scutellum and upper margin of the pleura, yellow, hairs pale. Tergites each with dark brown margin posteriorly which is produced forward on the middle line covering over half of the segment, the whole of the first and the last two mainly, brown. Venter, and anterior part of each tergite mainly yellow, hairs pale; hypopygium as figured (fig. 118). Coxæ and legs together with the hairs yellow, setæ of tibiæ and tarsi black, the longest of the tibial setæ not longer than the diameter of the tibia; trochanters margined with black; (fore legs broken in specimens); proximal fourth of middle tibia distinctly swollen; empodium not prominent; tarsal claws each with a basal tooth. Wings (fig. 88) hyaline, anterior veins brownish, posterior veins yellow, costa produced the length of the R-M crossvein beyond the tip of R_{4+5} but does not quite reach the tip of the wing; the subcosta is produced more than twice the length of the R-M crossvein beyond the distal end of the small cell R_1 ; the subcostal crossvein is placed beyond the middle of this cell; R_1 is nearly straight, R_{4+5} with a strong sigmoid curve; M_1 about $1\frac{3}{4}$ times as long as the petiole of the media; cubitus forks a little distad of the middle of the petiole of the media; anal vein not strong, incomplete; halteres yellow. One male specimen from Pine Lake, Wisconsin, collected by Prof. W. M. Wheeler, in June; and another from Bedford, Mass.

Female. Like the male but the base of the middle tibia is not swollen; the first and second palpal joints are but little longer than wide; the third and fourth subequal, about four times as long as wide, produced part of costa not quite as long as the R-M crossvein; fore metatarsus is 1.1-1.6 times as long as the tibia.

One female specimen from Hampton, N. H., collected by Mr. S. A. Shaw. This species differs from the European *undulata* in having a dull mesothorax.

4. *Polylepta nigellus* n. sp.

Male. Length 6 mm. Head black, subshining, second antennal joint yellow, remaining joints fuscous, proboscis and palpi subfuscous; antennæ longer than the thorax, third joint over twice as long as broad. Thorax and abdomen wholly subshining black, except the humeri which are narrowly yellow; setæ black; some of the hairs of abdomen subfuscous. Hypo-

pygium black, inconspicuous (fig. 121). Coxæ and legs yellow, trochanters tipped with black, tarsi brown; setæ of the legs and on the coxæ black; fore metatarsus .7 as long as the tibia; claws each with 2 short teeth; empodium brush-like. Wings (fig. 89) smoky hyaline, yellow basally, distal end of the heavier veins yellowish brown, the remaining veins yellow. Costa almost reaches the tip of the wing and is produced half the length of the R-M crossvein beyond the tip of R_{4+5} ; the subcosta ends opposite the distal, the subcostal crossvein opposite the proximal end of the small cell R_1 , which is trapezoidal and about as long as broad; M_1 is about 5.5 times as long as the petiole of the media; the sigmoid curve of R_{4+5} is quite noticeable; cubitus forks very slightly proximad of the base of the R-M crossvein; anal vein strong but incomplete. Halteres yellow. One specimen taken by Professor J. M. Aldrich on Mt. Constitution, Orcas, Id. Washington, in July.

5. (?) *Polylepta grisea* Walker.

1848. *grisea*, Walker. List of Diptera. Brit. Museum (*Sciophila*).

Body dark grayish brown, clothed with yellowish hairs; eyes black; palpi tawny; feelers black, ferruginous at the base; legs pale yellow; feet somewhat darker; wings colorless, veins brown; poisers pale yellow. Length of the body 4 mm.; of the wings 8 mm. St. Martin's Falls, Albany River, Hudson Bay.

Recorded also from N. H.

7. Genus *Empalia* Winnertz. E

Empalia, Winnertz. Verh. Zool.-bot. Ges. Wien, XIII. 763. 1863.

Head, eyes, antennæ, and legs as with *Sciophila* (*Lasiosoma*). Ocelli 3 in number, the laterals large, the middle one rather small, placed in a nearly straight transverse line, somewhat separated from each other, on the broad front. Palpi 4 jointed, incurved, the first joint small, the second twice as long, the third longer than the first 2 taken together, the fourth filiform, half again as long as the third. Thorax small, oval, highly arched, mesonotum short haired and without setæ; scutellum small. Abdomen 7 segmented, constricted at the base, tapering toward the apex; in the male compressed, in the female cylindrical, the ovipositor ending in 2 small lamellæ; the hairs short and appressed. Wings elongate oval, with rounded base,

shorter or not longer than the abdomen, microscopically hairy. Costa produced far beyond the tip of R_{4+5} , but not reaching the tip of the wing; the subcosta ends over the small cell R_1 curved toward the costa; Sc_2 (subcostal crossvein) proximad of the small cell; petiole of the fork of the media longer than the R-M crossvein; cubitus forks proximad of the fork of the media, but distad of the R-M crossvein; anal vein very short and incomplete (fig. 91). Winnertz reared specimens of this genus from rotten stems of *Carpinus betulus*.

Empalia tibialis Coquillett.

1901. *tibialis*, Coquillett, Proc. U. S. Nat. Mus. XXIII. 596.
(*Polylepta*).

Female. Length 5 mm. Head black, the face yellow and rather densely covered with bristly hairs; antennæ brown, the bases yellow, the third joint about twice as long as wide; mouth parts yellow, the penultimate and antepenultimate joints of palpi with leaf-like prolongation at the upper side of their outer ends; thorax polished, yellow, 2 approximated vittæ on the mesonotum and a transverse row of 3 spots on the metanotum dark brown, the hairs and bristles black; scutellum brownish yellow; abdomen yellow, the broad apices of the segments, sometimes crossing the segment in the middle of the dorsum, dark brown; halteres and legs yellow, the tarsi yellowish brown; front tibiæ each with a deep groove before apex of anterior side, extending about one-third length of tibia; wings grayish hyaline, costal cell tinged with yellow, subcostal vein obliterated at its apex, the crossvein slightly before base of radial sector, cubitus forking opposite the cell R_1 . N. H., N. J.

This species, originally located in *Polylepta*, I think is more naturally placed with *Empalia*. The straight course of R_{4+5} seems to me to have greater value as a generic character than the incompleteness of the subcosta. See note under the genus *Polylepta*.

8. Genus *Dziedzickia* Johannsen. E

Dziedzickia, Johannsen, Genera Insectorum 44. 1909.

Hertwigia, Dziedzicki, Pamietnik Fizyograf. V. 3. 1885.

Eyes oval, somewhat notched out around the base of the antennæ, widely separated; ocelli 3 in number, the middle one smaller, arranged in a transverse line on top of the head and

widely separated from the eyes; palpi 4 jointed, cylindrical, the first 2 joints short, third joint about half again as long as the second, the fourth slender, sickle shaped, twice as long as the third; antennæ 2+14 jointed, the first one cyathiform, the second cylindrical, the following joints cylindrical, slightly constricted in the middle. The hypopygium stands out, ovate in form, rather large, and not retractile into the abdomen. The tibial setæ are present. The costa extends beyond the tip of R_{4+5} , just reaching the tip of the wing; subcosta ends in R_1 upon the small cell R_1 ; this cell is usually over twice as long as wide; the media is forked under the distal extremity of this cell; the cubitus forks far proximad of the R-M crossvein, its branches widely separated; the second anal vein is stout and ends far beyond the base of the fork of the cubitus; the third anal vein is rather long but slender (fig. 92).

Table of Species.

- a. Wings hyaline.
 - b. Petiole of the media about five times as long as the R-M crossvein. 1. *pullata*.
 - bb. Petiole of the media about twice as long as the R-M crossvein. 3. N. sp.
- aa. Wings dark brown; petiole of the media about equal to the R-M crossvein in length. 2. *fuscipennis*.

1. *Dziedzickia pullata* Coquillett.

1904. *pullata* Coquillett, Invertebrata Pacifica I. 19. (*Neæmpheria*).

Male. Length 3.5 mm. Brown, the first two joints of antennæ, humeri, genitalia and legs, yellow, the latter changing to brownish toward apices of tarsi; antennæ over twice as long as the head and thorax, joints of flagellum very elongate, the third joint of antennæ about 5 times as long as wide; body opaque, the hairs and bristles black; bristles of tibiæ shorter than greatest diameter of the latter; wings hyaline, pubescent, subcostal vein terminates in R_1 slightly before middle of cell R_1 , this cell about 3 times as long as wide, R_{4+5} strongly bowed forward, peduncle of cell M_1 about 5 times as long as the R-M crossvein, cubitus at about one-fourth of distance from its base to the R-M crossvein. Stanford University, California.

Two male specimens taken in December by Professor W. M.

Wheeler agree perfectly with Mr. Coquillett's description, to which I may add that the fore metatarsus is about $\frac{3}{4}$ as long as the tibia; empodium brush-like, shorter than the claws which have 2 teeth each; hypopygium small (fig. 120), and anal vein does not reach the margin (fig. 92).

2. *Dziedzickia fuscipennis* Coquillett.

1905. *fuscipennis*, Coquillett. Journ. N. Y. Ent. Soc. XIII. 67. (*Sciophila*).

Female. Length 6 mm. Distinguished by the dark brown wings. Black, the femora, tibiae and bases of the tarsi and of the halteres, yellow. Mesonotum polished, its hairs chiefly yellow, the marginal bristles mostly brown, hairs of abdomen chiefly brown. First joint of front tarsi about 2-3 as long as the tibiae. Wings dark brown, subcosta terminates in R_1 near the middle of the small cell, petiole of cell M_1 subequal in length to the R-M crossvein, cubitus forks far before the R-M crossvein. Length 6 mm. Kaslo, British Columbia.

In this species the cell R_1 is much shorter than in *D. pullata*.

3. *Dziedzickia* n. sp.

There is an unnamed specimen from New Hampshire in the Loew collection at Cambridge with hyaline wings in which the petiole of the media is about twice as long as the R-M crossvein. A note in German apparently written by Loew indicated that he was uncertain of its generic position and therefore refrained from naming it.

9. Genus *Hadroneura* Lundström.

Hadroneura, Lundström, Acta. Soc. Fauna, Flora Fenn. 29, 1907.

Ocelli 3, middle one distinct. Wings (fig. 93) microscopically setulose; costa slightly produced beyond the tip of R_{4+5} ; the veins of the anterior parts of the wing unusually thickened; the cell R_1 elongated. The proboscis produced snout-like (fig. 61 in Pt. I). Abdomen 8 segmented. Distinguished from *Dziedzickia* by the snout-like proboscis and somewhat heavier wing veins.

Hadroneura kincaidi Coquillett.

1900. *kincaidi*, Coquillett, Proc. Wash. Ac. Science. II. 391.
(*Neæmpheria*).

Female. Length 6 mm. Head and its members black, second joint of antennæ yellow, about one-half as long as the third, the 3 ocelli in a transverse row and widely separated from each other; thorax black, opaque, gray pruinose, the mesonotum marked with 4 polished vittæ, scutellum black, the base narrowly yellow, its hairs and those of the thorax golden yellow; abdomen brownish black, slightly polished, its hairs yellowish; coxæ and femora yellow, tibiæ yellowish brown, tarsi dark brown, front tarsi toward their apices, noticeably higher than wide; halteres yellow; wings hyaline, bare, subcostal vein ending in R_1 before middle of cell R_1 , the latter about twice as long as wide, anterior fork of media about 10 times as long as its petiole, cubitus forking far before R-M crossvein, the latter shorter than first section of radial sector. Popof Island, Alaska. July.

I have seen this species at the U. S. Nat. Museum, hence the generic reference.

10. Genus *Diomonus* Walker. ✓

Diomonus, Walker, List. Dipt. Brit. Mus. I. 87. 1848.

Large species, over 6 mm. in length. Ocelli 3, widely separated, the middle one but little smaller than the laterals; antennæ 2+14 jointed, first basal joint pilose beneath. Thorax pilose rather than setose. The costa (fig. 94) ends at or but very slightly beyond the tip of R_{4+5} close to the tip of the wing; R_{4+5} slightly bowed back at the middle; cell R_1 less than twice as long as wide; petiole of the media longer than the R-M crossvein; the cubitus forks far proximad of the fork of the media; the setulæ are longer and more dense than in *Mycomya*; the wing is marked with two dark spots. Legs very long, fore metatarsus longer than the tibia; the middle femur of the male bears a blunt spine on the under side; hypopygium small (figs. 123, 125).

Walker's comparison of this genus with *Leptomorphus* is a most happy one, for with the exception of the presence of R_{2+3} in the wing of *Diomonus*, the two are very similar in structural characters.

Table of Species.

- a. Fulvous species.
 - b. Thorax with blackish stripes; hypopygium as figured (fig. 123); abdomen not distinctly fasciate.
 - 1. *bifasciatus*.
 - bb. Thorax without blackish stripes; abdomen fasciate with brown; hypopygium resembles that of *D. pulcher* (fig. 125).
 - 2. *magnificus*.
- aa. Blackish species.
 - b. Thorax strongly tinged with blue, palpi brownish yellow or yellow.
 - c. Apical half of antennæ pale yellow; legs mainly black.
 - 3. *nebulosus*.
 - cc. Antennæ of the male dark brown; legs mainly yellow.
 - 4. *subcæruleus*.
 - bb. Thorax and abdomen tinged with brown, palpi dusky; hypopygium as figured (fig. 125).
 - 5. *pulcher*.

1. *Diomonus bifasciatus* Say.

1824. *bifasciatus*, Say. Long's Exp. App. 363. (*Sciophila*).

Male. Length 8 to 10 mm. Antennæ brown; basal joints yellow; face yellow, at the base of the antennæ black, remainder of head brownish or blackish; palpi yellowish. Mesonotum yellow with a pair of oblique slender blackish stripes which arise near the anterior margin where they are clubbed, and meet at the base of the scutellum; another wider stripe along the lateral margin which nearly or quite touches the oblique stripe anteriorly; metanotum yellowish brown; lower half of the pleura brownish; hairs yellowish for the most part. Abdomen reddish, segments but slightly if at all darkened apically; hypopygium small (fig. 123). Legs yellow, tarsi slightly darker; fore metatarsus nearly 1.5 times the tibia in length; wings yellowish tinged, with a brown spot covering the small cell and the crossveins, short preapical fascia extending from the tip of R_1 to M_1 and a very faint cloud proximad of Cu_2 ; anal vein strong but incomplete. Halteres yellow, base of the knob more brownish.

Recorded from Northwest Territory, and N. H. My specimen is from the latter locality.

2. *Diomonus magnificus* n. sp.

Male. Length 8 to 12 mm. Head shining blackish brown, hairs mainly yellow; face strongly produced, yellow, palpi and other mouth parts yellow, scape of the antennæ yellow, the pile on the under side of the first joint yellow; flagellum fuscous, its first joint about 4 times as long as wide. Thorax and abdomen fulvous with yellow hair; the tergites with brownish posterior margins. Legs yellow, tarsi slightly darker; fore metatarsus about $1\frac{3}{8}$ times as long as the tibia; all claws with 2 teeth each; empodium represented by a few short setæ. Hypopygium resembling that of *D. pulcher* but the serrate lateral margin of the apex of the appendage marked "a" in figure 125 is much shorter (fig. 114). Wings hyaline, yellow tinged, veins yellowish to yellowish brown, setæ black, of greater length than the diameter of the largest vein, conspicuous; costa extends a very little beyond the tip of R_{4+5} ; the subcostal vein ends in the costa about opposite the distal end of the small cell R_1 which is nearly twice as long as wide; the subcostal crossvein is placed but slightly distad of the proximal end of the cell R_1 ; R_{4+5} is nearly straight and ends before the tip of the wing; petiole of the media is nearly half as long as M_1 ; the cubitus forks noticeably proximad of the R-M crossvein; anal vein strong but incomplete; a brown spot covers the small cell and the crossvein; a preapical triangular spot the apex of which is produced to the media; a faint cloud follows the course of the petiole of the media and another the course of Cu_2 , broadening on the margin. Halteres yellow with more or less infuscated knob.

Female. Similar to the male except for sexual characters. Ithaca, N. Y.; Salineville, Ohio; Mt. Greylock, Mass., (Owen Bryant, collector).

3. *Diomonus nebulosus* Walker.

1848. *nebulosus*, Walker. List. Dipt. Brit. Mus. I. 87.

Body purplish black, shining; palpi tawny; feelers bright yellow, black towards the base, a little longer than the chest, having 15 or 16 joints; first and second joints dark red; mouth dark red; legs black; tips of the hips and thighs at the base pale yellow; hind thighs armed beneath, near their tips, with long, stout spines; knees yellow, shanks with two long spines at their tips; feet reddish brown; wings slightly tawny, with gray tips, and each having a brown spot near the fore border

a little before the middle; veins brown; poisers yellow, with brown tips. Length of body 10 mm.; of the wings 16 mm. St. Martin's Falls, Albany River, Hudson's Bay. A male specimen in the Loew collection at Cambridge, Mass., has the apical half of the antennæ nearly white, sharply contrasting with the basal half.

4. *Diomonus subcæruleus* Coquillett.

1901. *subcæruleus*, Coquillett. Proc. U. S. Nat. Mus. 595.

Male. Length 9 to 13 mm. Black, polished and strongly tinged with blue, the mouth parts brownish yellow, antennæ dark brown, a yellow spot on each prothoracic spiracle; coxæ, femora, and tibiæ, yellow, the tarsi brownish yellow, halteres yellowish brown, the apices and peduncles yellow; hairs of mesonotum short, depressed, yellow, those of the sides, head, and abdomen rather long and black; wings densely hairy, grayish hyaline, a brownish spot at the R-M crossvein and a second beneath apex of R_1 ; cubitus forking before base of radial sector; cell R_1 about as broad as long; front tibiæ noticeably shorter than the first joint of their tarsi; middle femora each bearing a robust, outwardly directed spine on the under side a short distance before the apex. Apical half of antenna of female light yellow. N. H., Pa., Canada.

5. *Diomonus pulcher*, Johannsen.

1903. *pulcher*, Johannsen, Ent. News. XIV. 14. (*Sciophila*).

This fly differs from *S. subcærulea* Coq. in the following particulars: The thorax has no bluish tinge, the mouth parts are black and not yellow, and the antennæ are gray.

Male. Length 10 mm. Black, polished, with a brownish tinge. Palpi black, basal joint yellowish; face, front and occiput shining black. Antennæ fuscous, with whitish, very short appressed pile. Dorsum of the thorax, scutellum, metanotum and pleura polished black, sparsely covered with very short pale hairs; the prothoracic spiracle, the dorso-pleural suture, and behind the root of the wings slightly yellowish. Abdomen shining black with a brownish tinge, especially at the incisures and the venter. The hairs covering the abdomen are short and pale. Femora and coxæ, and anterior and middle tibiæ are a deep yellow; hind tibiæ are slightly infuscated, all tarsi are brown, darker apically; tips of the posterior femora and of all tibiæ are brown. The middle femora have a short, stout, blunt

spur on the under side near the apex; the fore tibiae each with one, the middle and hind tibiae with two spurs. The wing venation resembles that shown in figure 94, the forking of cubitus being proximad of the crossvein, the subcostal crossvein is near the base of the small cell; R_1 is nearly straight, and R_{4+5} is slightly curved forward so that the distal third is parallel with R_1 and ends more than the length of the R-M crossvein before the tip of the wing. The cell R_1 is about 1.5 times as long as broad. The wings are short haired; the veins are yellow excepting the crossveins which are dark brown. Covering the crossvein is a pale brown cloud, and near the apex below R_1 is another. The halteres are a dusky yellow or brown, the base of the peduncle is yellow. Described from one specimen taken June, 1901, at Axton, N. Y.

I have also seen a specimen from Hampton, N. H., collected by Mr. S. A. Shaw. To the above description I may add that the three ocelli are in a transverse row on the front; the fore metatarsus is nearly 1.4 times as long as the tibia in the male, a little less in the female; claws all with two basal teeth; hypopygium as shown in figure 125.

A female specimen taken by Mr. Shaw at the same place and time differs in having the intermediate segments of the abdomen with a reddish tinge; in one wing wholly lacking R_{2+3} , and but feebly indicated in the other. This specimen would have been classified with *Leptomorphus* owing to the defective venation had it not been accompanied by the male.

11. Genus *Ncampheria* Osten Sacken. ✓

Ncampheria, Osten Sacken, Catl. Dipt. 9, 1878.

Empheria, Winnertz, Verh. Zool.-bot. Ges. Wien. XIII. 707. 1863.

Ocelli two, large, closely approximate, if a median one is present it is exceedingly minute; eyes usually circular, but little if any emarginate; antennae somewhat compressed; no spur on middle coxae of males; costa (fig. 95-100) usually produced more or less beyond the apex of R_{4+5} which usually does not reach the tip of the wing; a conspicuous longitudinal fold lies between the radial sector and the media; wing with fasciae or spots. Thorax somewhat setose; hypopygium various. In other respects like *Mycomya*.

In "Genera Insectorum" I united this with *Mycomya*, treating it as a subgenus, for the reason that I did not consider the fasciate wings of generic value, none of the other characters being uniformly trustworthy. I restore it because I now believe that in addition to the markings on the wing there are sufficient structural characters which combined mark the genus even though none of them can independently be relied upon. The hypopygia while apparently differing from that of *Mycomya* are so varied and so complex in both genera that I have not yet found a single character which could be used to separate the two.

Table of Species.

- a. Media forks distad of the small cell R_1 which is not more than 3 times as long as wide.
- b. Extremity of the wing not hyaline.
 - c. Tergites of the first, third and fifth, and larger part of sixth, segments dark brown; a spot near anterior margin of second and fourth segments and produced in a median line, remaining parts and venter, yellow; entire dorsum sometimes dark brown. Length 4 mm. (fig. 98).
 - i. *macularis* n. sp.
 - cc. Intermediate abdominal segments each with a pair of spots near posterior margin, sometimes obsolete; length $5\frac{1}{2}$ mm.
 - 2. *didyma*. ✓
- bb. Wing with broad subapical fascia, the apex of the wing clear hyaline.
 - c. Spot which covers the R-M crossvein extends nearly to the posterior wing margin; small cell R_1 over twice as long as wide; apex of subcosta evanescent.
 - d. Subcostal crossvein is situated proximad of the base of the small cell R_1 ; (fig. 95).
 - 3. *nepticula*.
 - dd. Subcostal crossvein is slightly distad of the base of the small cell R_1 ; (fig. 96).
 - 4. *impatiens* n. sp. ✓
 - cc. The spot which covers the small cell and the crossvein does not reach the base of the fork of the cubitus; the subcostal crossvein is placed distad

of the middle of cell R_1 ; subcosta ends in the costa (fig. 99). 5. *indulgens* n. sp. ✓

aa. Media forks proximad of the apex of the cell R_1 which is more than 3 times as long as wide.

b. Apex of cells R_{4+5} and M_1 nearly hyaline. St. Vincent Isl., W. I. 6. *maculipennis*.

bb. Apex of cells R_{4+5} and M , broadly brown clouded.

c. The brown cloud covering R_{2+3} produced across the media; subcostal crossvein proximad of the apex of the very oblique basal section of the radial sector (fig. 100). 7. *illustris* n. sp. ✓

cc. The brown cloud covering R_{2+3} not produced; a brown cloud behind Cu_2 ; abdominal segments bimaculate (fig. 97). 8. *balioptera*. ✓

1. *Neæmpheria macularis* n. sp.

Male. Length 4 mm. Head and antennæ yellow, the latter slightly darker apically; palpi dark brown, ocellar tubercle black; second joint of scape with a black seta on dorsal side near apex, the basal joints of flagellum over twice as long as wide, the apical end of each joint of flagellum except the first with setulæ more erect than on the remainder of the joint. The pleura, sternum, scutellum, and lateral margin of mesonotum pale yellow; the dorsum pale brown, margined with darker brown, on the paler portion are 2 fine longitudinal lines which converge and meet in the vertex of an elongate triangular brown spot just cephalad of the scutellum; metanotum brown. The lateral margins of the mesonotum are provided with black setæ, more conspicuous at the base of the wings, also a few on anterior margin and just cephalad of scutellum, a few small ones on the dorsum, two longer ones on the scutellum. Tergites of the first, third, fifth and a larger part of the sixth segment of the abdomen dark brown; a spot near the anterior margin of the second and fourth and produced in a median line; the remaining parts, venter, and hypopygium (fig. 130) yellow. Legs yellow, tarsi more dusky, fore metatarsus is over 0.9 as long as the tibia; setæ of fore tibiæ few and short, those of middle and hind pairs more numerous, the longest about as long as the diameter of the tibia; spurs black; claws with one tooth each. Wings (fig. 98) hyaline, with a spot covering the small cell and the R-M crossvein but not reaching the cubitus, another cover-

ing the apex of the wing from the tip of R_1 to the tip of Cu_1 , apex without hyaline spot; subcosta ends in costa opposite apex of small cell R_1 ; subcostal crossvein a little before the middle of this cell, the latter but little longer than broad; costa noticeably produced beyond R_{4+5} ; petiole of the media about half as long as M_1 ; the cubitus forks under the base of the R-M crossvein. Halteres yellow. Ithaca, N. Y.

A female specimen from Montreal differs in having the top of the head pale brownish, no fine brown lines on the mesonotum, and the brown of the second and fourth segments of the abdomen more extended, produced into a fine line to the posterior margin; fore metatarsus and tibia subequal.

2. *Neampheria didyma* Loew. ✓

1869. *didyma* Loew, Berl. Ent. Zeitschr. XIII. 136 (*Empheria*).

1866. *bimaculata* Loew, Berl. Ent. Zeitschr. X. 6 (*Sciophila*).

Female. Length 5.5 mm. Yellowish. Flagellum of the antennæ fuscous black, palpi black. The first segment of the abdomen fuscous black excepting the sides and posterior margin, the intermediate segments yellow each with 2 transverse black spots on the posterior margin. Legs yellow, tarsi blackish toward their tips. Wings with cinereous tinge, toward the costa more yellowish; the costa produced slightly beyond R_{4+5} ; subcostal crossvein at or distad of the middle of cell R_1 , this cell of medium size and much shorter than the petiole of the media; the first section of the radial sector and the R-M crossvein covered by a cinereous fuscous spot, apex of the wing and apex of the posterior angle widely cinereous fuscous. Halteres yellow. Recorded from Canada.

3. *Neampheria nepticula* Loew.

1869. *nepticula* Loew, Berl. Ent. Zeitschr. XIII. 137. (*Empheria*).

Male and female. Length 2.5 mm. Pale yellow, palpi black, vertex and sometimes the mesonotum dusky yellow; the first, third and fifth abdominal segments black, the anterior half of the second blackish, the sides of the first segment in mature or the whole of the segment in immature specimens yellow. Wings (fig. 95) subhyaline, lightly cinerous; costa produced far beyond R_{4+5} , subcosta is paler and more slender than the other veins, becomes obsolete at the apex; subcostal vein is

placed near the tip of the costa and slightly proximad of the base of the cell R_1 , petiole of the media 3 times as long as this cell; a fuscous cinereous fascia extends from R_1 nearly to the posterior wing margin where it becomes very faint; apical third of the wing fuscous cinereous, becoming paler at the apex so that the mark appears like a subapical fascia. Fore metatarsus and tibia subequal. Length of wing 2.2 mm. Halteres pale. Recorded from Georgia and New Jersey. I have also seen a specimen from North Carolina.

4. *Neampheria impatiens* n. sp. ✓

Related to the foregoing but differs in being larger, in having the subcostal crossvein slightly distad of the base of the cell R_1 and in having the petiole of the media about twice as long as this cell.

Female. Length 4.5 mm. Head yellow; ocellar spot and palpi black, labellæ tipped with brown; occiput tinged with brown; a transverse row of 6 or 8, black, procumbent setæ just behind the ocelli. Mesonotum yellow, median and lateral stripes pale brown, the latter more distinct at base of wing; scutellum and mesonotum pale brown, pleura yellow with a longitudinal stripe over the middle and hind coxæ; setæ black, most conspicuous at the base of the wing and in front of scutellum, 2 long scutellar setæ. Dorsum of the first, second, third, fifth, and sixth segments dark brown; the posterior and lateral margins of these segments, the venter, ovipositor, and remaining segments, yellow. The dark coloring on the dorsum of the third and fifth segments rather more extended than on the others, covering all but very narrow lateral and posterior margins, ovipositor slender (fig. 131). Legs yellow, setæ and setulæ black, tarsi appear more dusky. Middle and hind tibiæ each with several rows of about 8 short black setæ in each row; each claw with a tooth near base; fore metatarsus and tibia subequal in length. Wings (fig. 96) hyaline, each with 2 broad brown bands, the first from costal cell covering cell R_1 and extending to beyond the fork of the cubitus, gradually fading out toward posterior margin; the second, subapical, leaving the apices of costa and R_{4+5} clear, extending to anterior branch of cubitus. Costa prolonged beyond apex of R_{4+5} and not reaching tip of wing; the subcostal crossvein joins the radius slightly distad of the base of cell R_1 , the subcosta extending a little beyond this,

gradually becoming fainter toward the tip and seemingly joining the costa; cell R_1 over twice as long as wide; petiole of the media about twice as long as the small cell; cubitus forks slightly distad of base of the R-M crossvein, the latter rather long and much curved. Halteres yellow. Kingston, R. I. Collected in August by Professor John Barlow.

A specimen from the Valley of the Black Mts., N. C., collected by Mr. Wm. Beutenmuller in July, and a specimen from Knoxville, Tenn., differ only in lacking the bar over the base of the coxæ and in having thorax a little more deeply yellow.

5. *Neæmpheria indulgens* n. sp. ✓

Female. Length 5 mm. Head yellow; palpi, ocellar spot and setæ black; flagellum of antennæ infuscated, intermediate joints about as long as wide, second joint of scape with a long slender black seta on dorsal surface. Thorax wholly yellow, mesonotum with 5 longitudinal lines of small black setæ besides the irregular lateral lines of longer setæ which extend to base of wing, humeri with a number, scutellum with 2 long setæ. Abdomen yellow, dorsum of second, third and fifth segments with large dark brown subtriangular spot; ovipositor yellow. Legs yellow; fore metatarsus about 0.85 times as long as the fore tibia; middle and hind tibiæ with short black setæ arranged in several longitudinal rows of 8 or 10 setæ in each; claws each with 2 basal teeth. Wings (fig. 99) hyaline, a brown spot covering the small cell and the R-M crossvein but not reaching the fork of the cubitus, a larger faint cloud posterior to Cu_2 and a subapical fascia from the tip of R_1 to the anterior branch of the cubitus, but leaving the tips of the costa, R_{4+5} and the media clear; veins yellowish brown; subcosta reaches the costa slightly distad of the tip of the cell R_1 ; the subcostal crossvein on the middle of the small cell which is but little longer than wide; petiole of the media is about half as long as Cu_2 ; the cubitus forks slightly proximad of the base of the crossvein; anal vein long but not reaching the margin. Halteres yellow. Taken in July at Montreal, Canada.

Male. Two specimens from Ithaca, N. Y., have indications of four ferruginous thoracic stripes, but are otherwise similar. The hypopygium is as shown in figure 128.

A specimen from Black Mts., N. C., taken by Mr. Beutenmuller, is similar to the Ithaca specimen but the subcostal crossvein is placed at the apex of the cell R_1 .

6. *Neæmpheria maculipennis* Williston.

1896. *maculipennis* Williston, Trans. Ent. Soc. London. 262.

Male. Length 5 mm. Antennæ about as long as the head and thorax together; the basal joints light yellow, the remainder with a brownish tinge. Palpi brown; front and face yellow; mesonotum, except the lateral margins, light brown, with black hair and bristles; indistinctly striped; moderately shining. Pleura, coxæ and femora light yellow. Scutellum, except at its base, light yellow, and with two bristles on its margin. Abdomen light yellow, each segment with a large black or brown spot, not reaching the hind margin. Tibiæ and tarsi yellow, but appearing blackish from the abundant, short, black hair; front tarsi more than twice the length of their tibiæ. Wings nearly hyaline, with the following markings: the tip of the subcostal cell and the cell R_{2+3} beyond R_{2+3} , and the proximal end of the cell R_{4+5} , brown; a more distinct brown spot clouding the subcostal crossvein, the basal section of the radial sector, the base of the cell R_{4+5} , and, more diffusely, along the posterior branch of the media, to connect with a spot running from the cell R_{4+5} into the hindermost posterior cell; a smaller brownish spot in the axillary angle; costal and subcostal cells yellowish; costa produced beyond the tip of R_{4+5} ; R_{2+3} situated a little beyond the furcation of the media. 1,000 ft., St. Vincent Isl., W. I.

7. *Neæmpheria illustris* n. sp. v

Male and female. Length 5 mm. Resembles *N. balioptera* in possessing an elongate cell R_1 , but differs in the position of the subcostal crossvein and in coloring; from *N. maculipennis* it differs in having the apex of the wing more widely brown.

Head yellow, ocellar spot and palpi black; antennæ yellow, intermediate joints little if any longer than broad, 2 or 3 black setæ at the apex of the second basal joint. Thorax yellow, mesonotum with 5 brown stripes, scutellum with a brown spot on the middle behind the suture, metanotum brown, setæ black, those on the humeri, at the base of the wing and the 2 on the scutellum most prominent. Abdomen yellow, the dorsum of segments 1, 3, 5 and 6 except at the incisures and a spot of greater or lesser extent at the base of each of segments 2 and 4, brown. The brown on the third and fifth extends to the lateral margins; hypopygium as figured (figs. 126, 127). Legs

yellow; setulæ of tibiæ and tarsi make these appear more dusky; setæ of middle and hind tibiæ shorter than diameter of these members; each claw with a tooth on the under side near the middle and 2 or 3 shorter tubercles near the base; fore metatarsus over 0.9 as long as the tibia in the male; subequal in the female. Wings (fig. 100) hyaline, veins brown; a brown cloud covers the subcostal crossvein and base of the radial sector; another cloud covers R_{2+3} , broadens posteriorly crossing the posterior radial cell, then follows the posterior branch of the media and merges into the brown which covers the entire apex of the wing from the tip of R_1 to beyond Cu_1 ; posterior to Cu_2 there is a faint indication of another cloud; the costa is distinctly produced beyond the apex of R_{4+5} ; the subcostal crossvein joins R_1 opposite the apex of the subcosta and before the apex of the very oblique first section of the radial sector; the media forks distinctly proximad of R_{2+3} ; the cubitus forks about opposite the base of the radial sector; anal vein distinct but incomplete. Halteres yellow. Ithaca, N. Y.

8. *Neampheria balioptera* Loew.

1869. *balioptera*, Loew. Berl. Ent. Zeitschr. XIII. 136.

Female. Length 6.2 mm. Yellowish or dusky yellowish; body pile black. Head a little darker; antennæ reddish yellow, apically blackish; palpi black. The posterior margins of the first abdominal segment with dark brown fascia and a large spot near each latero-posterior margin of segments 2, 3 and 4. In paler specimens the spots are pale brown. Hypopygium robust (fig. 129). Legs yellow, tibiæ somewhat darker, tarsi blackish, fore metatarsus $\frac{7}{8}$ as long as the tibia; tarsal claws each with 2 teeth. Wings (fig. 97) yellowish with a cinereous tinge, toward the costa more deeply yellowish; costa slightly produced beyond R_{4+5} ; the subcostal crossvein is placed near the base of the cell R_1 , this cell is large and longer than the petiole of the media; a fuscous spot extends from the subcosta, covering the subcostal crossvein, the basal section of the radial sector, the R-M crossvein and following the course of the petiole of the media; R_{2+3} is covered by a small fuscous spot; apex of the wing from the tip of R_1 to the tip of Cu_1 fuscous as well as the part behind Cu_2 , apically somewhat more faint.

This species has been recorded from Illinois and New Jersey. I have seen specimens from Ithaca, N. Y., and Chicago, Ill.

12. Genus *Mycomya* Rondani.*Mycomya*, Rondani, Dipt. Ital. Prodr. I. 194. 1856.*Sciophila*, Meigen (part.) Syst. Besch. I. 245. 30. 1818.*Sciophila*, Winnertz. Verh. Zool.-bot. Ges. Wien. XIII. 707. 1863.

The name *Mycomya* is used here in the sense of *Sciophila* of Winnertz over which it has priority. *Neampheria* which I considered as a subgenus in the "Genera Insectorum" I here restore to its original position for reasons already mentioned.

Head small, flattened in front, placed low upon the thorax; eyes elongate oval, usually emarginate at the base of the antennæ; ocelli placed close together, the laterals large, the median very minute or wholly wanting; proboscis short, palpi incurved, 4 jointed, the first joint very small, the fourth longest; antennæ 2+14 jointed, the joints of the scape setose at the tip, flagellar joints cylindrical, pubescent. Thorax highly arched, ovate, scutellum small, semicircular in outline. Abdomen slender, with 7 visible segments, constricted at the base; somewhat clavate, particularly in the male; hypopygium rather small (figs. 132-147); ovipositor short, terminating in 2 small lamellæ (fig. 139). Coxæ long, setose; legs long and slender, femora ciliated on flexor surface; tibiæ with lateral setæ. Wing (figs. 101-106) microscopically setulose, somewhat projecting beyond the tip of the abdomen. The costa usually ends at the tip of the wing where it meets R_{4+5} but usually not produced beyond it; the subcosta may end in the costa, in R_1 or end free; the subcostal crossvein at or distad of the base of cell R_1 ; cubitus forks proximad of the media; the anal veins incomplete and usually rather short. The larvæ have been found in fungi and in decaying wood.

*Table of Species.*Males.

- a. Thorax and abdomen nearly wholly dark; western species.
 - b. Subcosta ends in R_1 ; cubitus forks distad of the R-M crossvein.
 - 1. *littoralis*, var. *frequens*. n. var. ✓
 - bb. Subcosta ends in the costa; cubitus forks proximad of the R-M crossvein.
 - c. Middle coxæ with spurs; petiole of media about half as long as M_1 .
 - 4. *calcarata*.
 - cc. Middle coxæ without spurs; petiole of media about six times as long as R-M crossvein.
 - 5. *simplex*.

- aa. Thorax or abdomen or both with considerable yellow.
 - b. Hypopygium with two slender, slightly curved, dorsal processes (fig. 147); fore metatarsus shorter than its tibia, no coxal spur; mesonotum vittate.
 - 6. *Mycomya* sp.
 - bb. Hypopygium not as described above.
 - c. Subcosta does not end in the costa.
 - d. Subcosta ends in R_1 .
 - 1. *littoralis*.
 - dd. Subcosta ends free.
 - e. Dorsum of thorax black; posterior margin of the abdominal sclerites black.
 - 2. *obtruncata*.
 - ee. Dorsum of thorax vittate; margins of abdominal sclerites yellow.
 - 3. *sequax* n. sp.
 - cc. Subcosta ends in the costa.
 - d. Posterior margin of tergites distinctly brown or black; anterior part yellow.
 - e. Petiole of media equal or longer than M_2 .
 - f. Dorsum of thorax with distinct black markings; fore metatarsus shorter than tibia; subcostal crossvein at the middle of the cell R_1 .
 - g. Mesonotum with 2 oblique lines which meet at scutellum; a median line and 2 elongate lateral spots over the base of the wing.
 - 7. *obliqua*.
 - gg. Mesonotum with 3 confluent or subconfluent dusky stripes.
 - 8. *tantilla*.
 - ff. Mesonotum with faint markings.
 - 9. *nigracauda*.
 - ee. Petiole of media shorter than M_2 .
 - f. Middle coxæ without spurs; fore metatarsus shorter than its tibiæ; median vitta of thorax usually paler than the laterals.
 - 10. *brevivittata*.
 - ff. Middle coxæ with spurs; fore metatarsus equal or longer than its tibia.
 - g. Dorsum of abdomen with longitudinal black stripe; fore metatarsus equal to tibia in length; subcostal crossvein proximal of middle of cell R_1 ; length 4.5 mm.; hypopygium as figured (fig. 135).
 - 11. *marginalis* n. sp.

gg. Posterior margins of tergites black; fore metatarsus longer than its tibia; hypopygium as figured (figs. 132, 136).

12. *imitans* n. sp.

dd. Posterior margins of tergites yellow, or abdominal segments unicolored, yellow or brown.

e. Abdomen with 2 or 3 spots on each segment; petiole of media shorter than M_2 .

13. *biseriata*.

ee. Abdomen not so marked.

f. Dorsum of abdomen with a median row of large spots which may be confluent, forming a dorsal stripe; middle coxæ with spurs; fore metatarsus equal or longer than the tibia.

g. Fore metatarsus 1-10 longer than the tibia; hypopygium as figured (fig. 137); length 6.5 mm. 14. *maxima* n. sp. ✓

gg. Fore metatarsus subequal to tibia in length; hypopygium as figured (fig. 135); length 4.5 mm.

11. *marginalis* n. sp.

ff. Tergites each with a more or less yellow posterior margin; or wholly of one color.

g. Fore metatarsus is longer than the tibia.

h. Abdomen brown, sclerites faintly yellow margined posteriorly; length 4 mm.; hypopygium as figured (fig. 138); cell R_1 2.5 times as long as wide and half as long as the petiole of the media. 15. *sigma* n. sp.

hh. Abdomen not so marked.

i. Subcostal crossvein proximad of the middle of cell R_1 ; only the posterior margins of tergites yellow; length 6.5 mm. 14. *maxima* n. sp.

ii. Subcostal crossvein is near middle of the cell R_1 ; length 3.5 mm.; both anterior and posterior margins of tergites yellow. 17. *hirticollis*.

gg. Fore metatarsus shorter than its tibia.

h. Neither thorax nor abdomen with distinct dark markings; cubitus forks under or distad of the R-M crossvein; length 3 mm. St. Vincent Isl.

18. *meridionalis* n. n.

hh. Not as above.

i. Length 5 mm. or more.

j. Thorax and scutellum yellow; cubitus forks far before the base of the radial sector.

19. *flavohirta*.

jj. Thorax with three subconfluent black stripes; cubitus forks under the R-M crossvein.

20. *mendax* n. sp.

ii. Length 3.5 mm. or less.

j. Subcostal crossvein proximad of middle of cell R_1 .

16. *appendiculata*.

jj. Subcostal crossvein at middle of cell R_1 .

17. *hirticollis*.

Females.

a. Subcosta does not end in the costa.

b. Subcosta ends in a stump; petiole of the media is shorter than M_2 ; thorax yellow with dark brown stripes; cubitus forks under the R-M crossvein.

c. Length 6.5 mm.

14. *maxima* n. sp.

cc. Length 3.5 mm.

3. *sequax* n. sp.

bb. Subcosta ends upon R_1 ; petiole of the media is longer than M_2 ; length 3 to 4 mm.

c. Thorax and abdomen mainly dark. California.

1. *littoralis* var. *frequens* n. var.

cc. Thorax and abdomen largely yellow. 1. *littoralis*.

aa. Subcosta ends in the costa.

b. Posterior margin of each tergite black or brown.

c. Cubitus forks distad of the R-M crossvein; fore metatarsus shorter than the tibia; length 3 mm.

d. Subcostal crossvein near middle of small cell R_1 .

8. *tantilla*.

dd. Subcostal crossvein near base of cell R_1 .

21. *nigatoria* n. sp.

cc. Cubitus forks under or proximad of R-M crossvein.

d. Mesonotum with 5 elongate spots or stripes, the median and the oblique first laterals meeting in front of the scutellum; petiole of media is equal or greater than M_2 . 7. *obliqua*.

dd. Mesonotum with 3 more or less distinct stripes; the subcostal crossvein at or distad of the middle of cell R_1 .

e. Petiole of the media about 1.5 times as long as cell R_1 ; middle thoracic stripe subobsolete.

22. *onusta*.

ee. Petiole of the media about twice as long as the cell R_1 ; middle thoracic stripe distinct.

12. *imitans* n. sp.

bb. Posterior margin of each tergite yellow, or abdomen is uniformly colored.

c. Three elongate spots on each tergite. 13. *biseriata*.

cc. Tergites marked otherwise.

d. Fore metatarsus equal or shorter than its tibia.

e. Length 3.5 mm. 17. *hirticollis*.

ee. Length 5 to 6 mm.; petiole of media is shorter than M_2 . 20. *mendax* n. sp. and varieties.

f. Cubitus forks distad of the R-M crossvein and the subcostal crossvein is placed proximad of the middle of cell R_1 .

maxima → see p. 188

20. var. a. of *mendax* n. sp.

ff. Cubitus forks under or proximad of R-M crossvein, and subcostal crossvein is placed at or distad of the middle of cell R_1 .

g. Fore metatarsus is 0.9 as long as its tibia; the cubitus forks under the R-M crossvein; the subcostal crossvein is near the middle of cell R_1 . 20. *mendax* n. sp.

gg. Fore metatarsus is 0.8 as long as its tibia; the cubitus forks proximad of the R-M crossvein; the subcostal crossvein is distad of the middle of cell R_1 .

20. var. b. of *mendax* n. sp.

dd. Fore metatarsus is longer than its tibia.

e. Thorax black with yellow humeri; petiole of media about 6 times as long as cell R_1 ; length 4 to 6 mm. 5. *simplex*.

ee. Thorax largely yellow.

f. Subcostal crossvein is placed proximad or at the middle of cell R_1 .

g. Length 3.5 mm. "Both anterior and posterior margins of each tergite, pale."

17. *hirticollis*.

gg. Length 4 to 5.5 mm.

h. Fore metatarsus about 1-12 longer than its tibia.

i. Subcostal crossvein is placed at middle of cell R_1 . 23. *recurva* n. sp.

ii. Subcostal crossvein proximad of middle of this cell.

23. *recurva* var. *chloratica* n. var.

h. Fore metatarsus over 1-5 longer than its tibia. 24. *incompta* n. sp.

ff. Subcostal crossvein is distad of the middle of the small cell R_1 ; "apex of R_{2+3} turned toward the base of wing"; length 6 mm.; Colorado. 25. *angulata*.

1. *Mycomya littoralis* Say.

1824. *littoralis*. Say, Long's Exp. St. Peter's River. App. 361. (*Sciophila*).

Male. Length 3.5 mm. Vertex fuscous, ocellar spot, black, eye margin and occiput subfuscous to yellowish; face, palpi, mouth parts and scape yellow; the flagellum fuscous, except sometimes 1 or 2 basal joints; third joint nearly twice as long as wide; antennal hairs pale, setæ of the head, black. Thorax yellow, 3 dark brown stripes on mesonotum, the laterals abbreviated anteriorly, the middle one prolonged both anteriorly and posteriorly; anterior margin of scutellum and a spot on metanotum, brownish; the 4 scutellar setæ and the setæ of the anterior and lateral margins of the thorax, black; the smaller setæ of the dorsum, arranged in 3 rows of 2 lines each, are also black, but the finer hairs on the dorsum and 2 longer ones on the posterior margin are pale yellow. Abdomen yellow, the dorsum

of the first and sixth in large part, and narrow posterior margins of the remaining segments dark brown, usually also a brown spot on the anterior margin which is more or less prolonged along the median line; abdominal hairs pale. Hypopygium (similar to fig. 144) yellow, much resembling that of *M. penicillata* Dzied.; the inferior forceps with broad margin and strongly ciliate; the superior forceps (fig. 145) widened spatulate, the margin with one long and slender seta and several shorter, stout, blunt spines, and arising from near the base a curved spatulate and setose process projecting laterally; the intermediate appendages are much prolonged, slender, doubly curved; the caudal margin of the ventral sclerite is bilobed and pectinate. The legs are yellow and quite slender, the fore metatarsus is over $\frac{3}{4}$ as long as the tibia; the larger setæ of hind tibiæ but little longer than the diameter of this member. Wings (fig. 101) hyaline, slightly yellow tinged; subcosta ends in R_1 usually proximad though sometimes distad of the middle of cell R_1 ; variable occasionally even in the two wings of the same individual, small cell about twice as long as broad measured along R_1 ; petiole of the media longer than M_2 ; R_{4+5} ends very slightly before the tip of the wing; cubitus forks distad of the R-M crossvein. Length of wing is 3 mm. and is 3 times as long as the fore metatarsus. Halteres yellow. Ithaca and Old Forge, N. Y.; Price Co., Wisconsin; July and August.

Female. Similar to the male but the wing is slightly larger and the ratio of fore metatarsus to tibia is smaller. In immature specimens the stripes on mesonotum may be pale brown, or the lateral stripe yellowish brown and the median stripe darker.

Var. *frequens* n. var. ✓

Male and female. Similar to the typical form in structure of wing and legs but differs in having head including mouth parts, thorax (except humeral spot and a spot at base of the wings), and abdomen dark brown; coxæ yellowish brown; legs tinged with brown; and inner lobe of superior forceps crescent shape (fig. 144a, edge view).

Berkeley (Wheeler); Alum Rock Park, San Jose; (Aldrich); Felton, St. Cruz Mts. (J. C. Bradley); California, March, April, May.

2. *Mycomya obtruncata* Loew.

1869 *obtruncata*, Loew, Berl. Ent. Zeitschr. XIII. 139. (*Scio-phila*).

Male. Length 3.3 mm. Head fuscous black, lower half of the face paler; antennæ fuscous black, scape as well as the basal joint of the flagellum yellowish; palpi yellowish. Thorax fuscous black, with black pile, humeri widely yellowish, the lateral margins whitish or pale yellowish; scutellum fuscous black; upper half of the pleura dusky yellowish, lower half fuscous. First, sixth and seventh abdominal segments wholly black, the remaining segments yellowish, except for the black apical fasciæ of each; hypopygium small, yellowish. Pile of the abdomen black. Coxæ and legs pale yellow, tarsi fuscous. Wings cinereous tinged, veins fuscous; subcostal vein ends free a little beyond the subcostal crossvein which is placed slightly proximad of the middle of the cell R_1 ; the petiole of the media and its fork subequal in length; the cubitus forks distad of the R-M crossvein. Length of wing 3.5 mm. Halteres pale. Recorded from District of Columbia.

3. *Mycomya sequax* n. sp.

Male. Length 3.5 mm. Slender; head and antennæ brown; ocellar spot black; occiput, face, palpi and base of antennæ yellow; with setæ black; intermediate antennal joints about 1.5 times as long as wide. Thorax yellow, the 3 dorsal stripes and metanotum pale brown with wide yellow lateral and posterior margins. Hairs pale. The last abdominal segment more prominent than the small and inconspicuous hypopygium (fig. 146) yellow, resembling that of *ocultans* Winn., as figured by Dzied-zicki. Legs long and slender, yellow, fore metatarsus over 1.25 times as long as its tibia; spur of intermediate coxæ slender and about half as long as the fore tibia; setæ of hind tibia not twice as long as the diameter of this member. Wings (fig. 103) hyaline, yellow tinged, large veins brownish yellow, subcosta ends in a stump a little beyond the subcostal crossvein which is placed very near the base of the cell R_1 , the latter is large, over twice as long as wide; R_{4+5} ends at the tip of the wing; the petiole of the media is equal to M_2 in length, the cubitus forks slightly distad of the R-M crossvein; the wing is 3.5 mm. in length which is 1.7 times as long as the fore metatarsus. Halteres yellow.

Female. Similar to the male but the fore metatarsus is 1.1-6 times the tibia in length, and the subcostal crossvein is near the middle of the small cell R_1 which is not quite twice as long as wide; no coxal spurs. Both sexes from Ithaca, N. Y., taken in July.

4. *Mycomya calcarata* Coquillett.

1904. *calcarata*, Coquillett. Invertebrata Pacifica I. 19. (*Sciophila*).

Male. Length 4 mm. Black, the extreme base of third joint of antennæ, halteres, genitalia largely, femora, tibiæ and base of first joint of tarsi yellow; third joint of antennæ nearly 3 times as long as broad, the following joints longer than wide; body opaque, gray pruinose, mesonotum marked with 3 black vittæ, the middle one divided medially by a gray line, hairs and bristles of thorax black; middle coxæ bearing at apex of front side a forwardly directed, 2-pointed spur which is almost half as long as the coxæ; bristles of tibiæ shorter than the greatest diameter of the latter; fore metatarsus slightly shorter than its tibia; wings pubescent, hyaline, subcostal vein terminates near middle of cell R_1 , the subcostal crossvein slightly before the middle of this cell, the latter about 1.5 times as long as broad, R_1 and R_{4+5} veins strongly bowed forward, peduncle of cell M_1 about half as long as M_1 , cubitus forks slightly before R-M crossvein. California.

5. *Mycomya simplex* Coquillett.

1905. *simplex*, Coquillett, Journ. N. Y. Ent. Soc. XIII. 67 (*Sciophila*).

Male and female. Length 4 to 6 mm. Near *calcarata* but the middle coxæ are without spurs, etc. Black, the mouth parts, bases of antennæ, a humeral spot, base of venter, halteres, coxæ, femora, tibiæ, bases of tarsi and hind borders of abdominal segments of the female, yellow, hind coxæ usually marked with brown. Antennæ elongate, the joints beyond the second over twice as long as wide. Body opaque, densely gray pruinose, the hairs black. First joint of front tarsi subequal or slightly longer than the tibiæ. Wings hyaline, subcostal vein ends in costa near or beyond middle of cell R_1 , petiole of media cell about 6 times as long as the small crossvein, cubitus forks slightly before the small crossvein. British Columbia, July and August.

6. *Mycomya* sp.

Male. Length about 3.5 mm. Head yellowish brown, occiput, face and palpi yellow; ocellar spot distinct, blackish; setæ black. Thorax yellow, 3 dorsal stripes dark brown, the lateral abbreviated anteriorly; scutellum and mesonotum pale brown; abdomen defective, tergites apparently mainly brown with yellow along lateral margin; hypopygium as figured (fig. 147). Coxæ yellow, middle pair without spur; fore metatarsus .55 times as long as its tibia. Antennæ, wings and middle and hind legs missing. A specimen taken by Professor Wheeler, in August, in Price Co., Wis.

7. *Mycomya obliqua* Say.

1824. *obliqua*, Say, Long's Exped. St. Peter's River, App. 363. (*Sciophila*).

Male. Length 3.5 mm. Head black, face, mouth parts and basal joints of antennæ yellow; flagellum fuscous. Thorax yellow with two oblique brown stripes which meet at the scutellar suture; a median stripe between these and produced to the collar usually paler brown, and two lateral darker brown stripes abbreviated anteriorly; scutellum except at the suture and dorsum of metanotum usually dark brown; a few fine pale hairs on the dorsum; setæ black. Abdomen yellow, the first, sixth and seventh tergites and the posterior third of each of the remaining ones black or dark brown; hairs pale. Hypopygium (fig. 133) yellow, resembling that of *M. lucorum* Winn; superior forceps are broad, and with rounded margins, setose; the intermediate appendages are long and very slender, doubly sinuate, somewhat flattened, tapering at the apex and produced beyond the forceps; the caudal margin of the ventral sclerite is straight, strongly ciliate and with a small rounded protuberance on each lateral angle. The legs are yellow and quite slender, tarsi slightly darker; fore metatarsus is $\frac{3}{4}$ as long as its tibia, the larger setæ of the hind tibiæ are shorter than the diameter of the member. Wings (fig. 102) hyaline, slightly yellow tinged; subcosta ends in the costa proximad of the distal end of the small cell; subcostal crossvein is placed nearly at the middle of this cell, which is about twice as long as wide; R_{4+5} ends nearly at the tip of the wing; the petiole of the media is longer than M_2 ; the cubitus forks almost directly under the R-M crossvein. Length of wing is 3.5 mm., which is 3.5 times as long as the fore metatarsus. Halteres yellow.

Female. Like the male but the wing is about 3.75 times as long as the fore metatarsus. New York; Rhode Island; Massachusetts (Johnson, col.); New Hampshire; Montreal. July and August.

Two females from Wisconsin collected by Professor Wheeler differ only in having the petiole of media and M_2 subequal.

8. *Mycomya tantilla* Loew.

1869. *tantilla*, Loew. Berl. Ent. Zeitschr. XIII. 140 (*Sciophila*).

Male. Length 3 mm. Head fuscous, palpi, proboscis, scape and basal joints of flagellum yellow, remainder of flagellum fuscous; basal flagellar joints about 1.5 times as long as wide; antennal hairs pale, setæ of head black. Thorax yellow, dorsum dark brown or with three subconfluent stripes in immature specimens; scutellum slightly infuscated; metanotum subfuscous, the four scutellar setæ and setæ of the thorax are black; dorsum with a few fine pale hairs. Abdomen yellow, tergites each more or less widely margined with black or dark brown, in well colored specimens the dark color is produced forward along the median line to almost the front margin leaving only more or less triangular yellow patches on the sides, in immature specimens the dark color is confined to the posterior third of the segment; hairs of abdomen dusky. Hypopygium (figs. 140, 143) yellow, resembling that of *M. brunnea* Dzied.; large; the inferior sclerite (shown folded down in fig. 140a, and in profile in fig. 143) is large, with 2 stout spines on each lateral margin projecting laterad; the intermediate appendages are slender, lanceolate, not produced much beyond the end of the inferior margin; the latter has four blunt lobes; in addition there are on the inner surface a pair of slender cylindrical processes and a pair of four-tined forks. The legs are yellow, quite slender; the fore metatarsus is $\frac{3}{4}$ as long as the tibia, the larger setæ of the hind tibia are longer than the diameter of this member. Wings (fig. 105) hyaline, slightly tinged with yellow; subcosta ends in the costa opposite the distad end of the cell R_1 ; the subcostal crossvein is about at the middle of this cell which is not twice as long on anterior margin as wide; R_{4+5} ends before the tip of the wing and very slightly before end of costa; petiole of the media is longer than M_2 ; the cubitus forks slightly distad of the R-M crossvein. Length of the wing is 3 mm., which is

2.75 times the length of the fore metatarsus. Halteres yellow.

Female. Like the male but the wing is proportionately larger. S. D. (Aldrich, col.); Wyoming and Wisconsin (Wheeler, Col.). September. Recorded also from Nebraska.

9. *Mycomya nigricauda* Adams.

1903. *nigricauda*, Adams, Kas. Science Quart. II. 23. (*Sciophila*).

Male. Length 4 mm. Yellow, subshining; head black, base of antennæ and mouth-parts yellow, sparse pile black; thorax yellow, in places slightly tinged with brown, viewed from before slightly grayish pollinose, pile black, halteres yellow; abdomen yellow, apices of segments, last one wholly black, hypopygium yellow, pile light brown; legs yellow, tarsi, except base, fuscous; wings hyaline, larger veins brown, subcostal crossvein near apex of subcostal vein and just before the middle of the cell R₁, first branch of media about as long as its prefurca, furcation of the cubitus takes place just beyond the small crossvein. Colorado City, Colo., July.

10. *Mycomya brevitittata* Coquillett.

1905. *brevitittata*, Coquillett, Journ. N. Y. Ent. Soc. XIII. 67. (*Sciophila*).

Male. Length 3.5 to 4 mm. Head reddish brown, vertex dusky; ocellar spot black, distinctly marked; face, palpi, proboscis, scape and basal joints of flagellum yellow, remainder of flagellum brown; antennæ rather short, compressed, first flagellar joint about twice, the others but little longer than wide. Thorax yellow, subopaque, lateral stripes brown or black, abbreviated anteriorly and not meeting posteriorly; a brown spot over the base of the wing, a geminate reddish brown median stripe not reaching the scutellum, dorsum and sides of metanotum and some spots on pleura, brown; the four scutellar setæ, and the marginal setæ of mesonotum black and conspicuous; the fine pale hairs more numerous than in related species. Abdomen yellow, the posterior third or half of each tergite blackish, subshining, sixth and seventh segments wholly black. Hypopygium (fig. 134) yellow, resembling that of *M. levis* Dzied., the two pairs of forceps and the intermediate appendages are all slender and not produced beyond the margin of the ventral sclerite; this sclerite is provided with a pair of lateral processes

each with about twelve stout setæ, and a median pair of slender palmate lobes each with six fingers which decrease in length outwardly. Legs yellow, slender; fore metatarsus about 0.8 as long as its tibia; setæ of hind tibia but little longer than the diameter of this member. Wings (fig. 104) hyaline, slightly smoky tinged, larger veins dusky yellow; subcosta ends in the costa before the middle of this cell; R_{4+5} ends slightly before the tip of the wing; petiole of the media about half as long as M_2 ; the cubitus forks proximad of the R-M crossvein. Length of wing is 3.5 mm., which is three times as long as the fore metatarsus. Halteres yellow. N. Y., Wis., Ill., May, July, August. The species was originally recorded from British Columbia.

Mycomya marginalis

11. *Mycomya marginalis* n. sp.

Male. Length 4.5 mm. Resembles *M. maxima* but differs in size and structure of the hypopygium. Head brown; face, palpi and base of antennæ yellow. Thorax yellow, the three wide stripes on mesonotum, lower margin of pleura, dark brown; scutellum yellowish brown; four scutellar setæ and setæ of mesonotum black; the finer hairs paler. Abdomen yellow; tergites each with a wide blackish longitudinal stripe, last segment wholly dark, hairs brownish. Hypopygium (fig. 135) somewhat resembles that of *M. maxima* but here the central "processus" is but feebly developed. Legs slender dusky yellow, fore metatarsus and tibia subequal, middle coxæ spurred; setæ of hind tibiæ about twice as long as the diameter of the member, hind coxæ brown on outer side. Wings like those of *M. maxima* but the subcosta ends in the costa a little proximad of the distal end of small cell. Length of wing is 4.5 mm., which is 2.5 times as long as the fore metatarsus. Halteres yellow. One specimen taken in July in the Selkirk Mts., B. C., by Mr. J. C. Bradley.

12. *Mycomya imitans* n. sp.

Male. Length 4 mm. Head and antennæ brownish; the basal joints of the latter, face, palpi, and in large part the occiput, yellow; ocellar spot black and sharply defined; intermediate antennal joints somewhat longer than wide, setæ of the head black. Thorax yellow, three dark brown dorsal stripes, the laterals converging but not meeting, nor quite reaching scutellum, abbreviated anteriorly; the geminate median stripe abbrev-

viated posteriorly; metanotum yellowish brown; four scutellar bristles and setæ of the thorax black, finer hairs pale. Abdomen yellow, each tergite with dark brown posterior margin which is more or less produced forward in a dorsal line; sixth and seventh segments wholly dark; hairs pale. Hypopygium (figs. 132, 136) yellow, resembling that of *pulchella* Dzied., dorsally with a pair of doubly curved horn-like processes articulated at the base. Legs slender, yellow, fore metatarsus about $1\frac{1}{8}$ times as long as the tibia; spur of middle coxæ sickle shaped, short, about $\frac{1}{8}$ as long as the fore metatarsus; setæ of hind tibia not twice as long as the diameter of the member. Wings hyaline, yellow tinged; subcosta ends in the costa beyond the middle of the cell R_1 , which is over twice as long as wide, the subcostal crossvein is near the middle of this cell; R_{4+5} ends at the tip of the wing; petiole of the media is about half as long as M_2 ; cubitus forks under or slightly proximad of the R-M crossvein. Length of wing is 4 mm., which is twice the length of the fore metatarsus. Halteres yellow.

Female. Like the male but the subcostal crossvein is distad of the middle of the cell R_1 and the coxal spurs are wanting. In immature specimens the brown markings of head, thorax and abdomen are less extended. Ithaca, N. Y.; Mass. and Wis. (Wheeler, col.); Selkirk Mts., B. C. (Bradley, col.); Kingston, R. I. (Barlow, col.). July and August

13. *Mycomya biseriata* Loew.

1869. *biseriata*, Loew, Berl. Ent. Zeitschr. XIII. 140. (*Scio-phila*).

Male. Length 5.7 mm. Yellowish; vertex dusky. Thorax yellowish; dorsum with black pile; pleura with subfuscous spots. Abdomen with black pile; each segment excepting the first with a triangular fuscous black spot on each side which extends from the anterior nearly to the posterior margin. Legs pale yellow, tarsi more dusky. Wings uniformly tinged with cinereous yellow, veins dusky yellow; subcostal vein ends in the costa (in the left wing its apex is subobsolete in the type specimen); cell R_1 is large, the subcostal crossvein is placed at the middle of this cell; petiole of the media is shorter than the cell M_1 but nearly twice as long as cell R_1 , cubitus forks under the base of the R-M crossvein. Recorded from the Red River, Canada.

An examination of the type shows that the posterior segments have 3 spots each, the middle spot becoming obsolete on the anterior segments.

Female. Length 5.5 mm. Head and face reddish yellow; scape and basal flagellar joints yellow, remaining joints more or less fuscous; basal flagellar joints over twice as long as wide; ocellar spot and setæ of the head black. Thorax yellow, 3 pale reddish brown dorsal stripes, the middle one divided; metanotum and lower part of pleura with brownish tinge. Setæ including the 4 of the scutellum, black, finer hairs pale. Abdomen yellow, each tergite with a large, black triangular spot on each side and an elongate median spot extending from the anterior nearly to the posterior margin thus forming a nearly continuous longitudinal stripe. Legs yellow, middle and hind coxæ with a large spot near the tip on outer side; tarsi infuscated; fore metatarsus about 0.85 as long as its tibia, setæ of the hind tibia less than twice as long as the diameter of the member. Wings hyaline, slightly cinereous, heavy veins yellowish brown; subcosta ends in the costa before the distal end of the cell R_1 which is about twice as long as wide; the subcostal crossvein is placed near the middle of this cell; R_{4+5} ends at the tip of the wing; the petiole of the media is about $\frac{5}{8}$ as long as M_2 ; the cubitus forks under or very slightly distad of the R-M crossvein; the wing is 5 mm. long, which is 3.3 times as long as the fore metatarsus. Halteres yellow. Two specimens from the Selkirk Mts., B. C., collected by Mr. J. C. Bradley in July.

14. *Mycomya maxima* n. sp. ✓

Male. Length 6.5 mm. Head brown, occiput paler, face, palpi, scape, and base of first flagellar joint yellow; flagellum dark brown, intermediate joints about twice as long as wide; the two ocelli prominent; setæ black. Thorax yellow, three stripes on mesonotum dark brown, the middle one produced cephalad, the laterals abbreviated anteriorly but all three coalescent posteriorly; metanotum and two small spots over base of wing also brown; scutellum paler brown; setæ black, intermingled with very fine pale hairs; four black scutellar setæ. Abdomen yellow, each tergite with a dark brown or blackish spot extending from the anterior margin nearly to the posterior margin, widest at the middle; dorsum of the sixth and seventh

segments wholly black; hairs black. Hypopygium (fig. 137) dusky yellow, resembling that of *M. bicolor* Dzied, forceps slender, acuminate, the central "processus" truncate, with lateral setæ near the tip and projecting far beyond the superior forceps. Legs slender, dusky yellow, fore metatarsus 1.1 times as long as its tibia; each middle coxæ with a cephalad projecting sickle-shaped spur which is about 1-3 as long as the fore metatarsus; setæ of hind tibiæ little longer than the diameter of the member. Hind coxæ outwardly for the most part brown. Wings (fig. 106) hyaline, slightly cinereous tinged; subcosta ends in the costa opposite the distal end of the small cell; subcostal crossvein is before the middle of this cell, which is about twice as long as wide; R_{4+5} ends beyond the tip of the wing; petiole of the media is $\frac{3}{4}$ as long as M_2 ; cubitus forks proximad of the R-M crossvein. The wing is 6.5 mm. long, which is 2.1 times as long as the fore metatarsus. Halteres yellow. One specimen from Maine taken by Mr. Owen Bryant in August.

Female. A specimen taken at the same time and place differs as follows: lower margin of pleura is dark; the yellow of the abdominal tergites is confined to a posterior fascia, the fore metatarsus and tibia are subequal; coxal spurs wanting; subcosta interrupted at the tip; subcostal crossvein slightly distad of the middle of cell R_1 ; cubitus forks only slightly proximad of the R-M crossvein. Wing is three times as long as the fore metatarsus.

15. *Mycomya sigma* n. sp.

Male. Length 4 mm. Head, face, and antennæ brownish, the basal joints of the last and the palpi yellow; intermediate antennal joints but little longer than wide. Thorax yellow, the three dorsal stripes dark reddish brown, the middle one broad on anterior margin, tapering and not reaching the scutellum; the laterals abbreviately anteriorly and broadened posteriorly; metanotum and lower margins of pleura also brown; the two scutellar bristles and the setæ of mesonotum brown. Abdomen brown, posterior and lateral margin a little more yellowish, margins not sharply defined; hairs pale. Hypopygium (fig. 138) yellow; forceps short and slender, intermediate appendages lanceolate and acute and the "processus" consisting of a pair of slender, slightly clavate median lobes. Legs long and slender,

yellow; fore metatarsus 11-16 times the tibia in length, setæ of hind tibia but little longer than the diameter of the member. Wings hyaline, with a yellowish tinge; veins brownish yellow, subcosta ends in the costa about opposite the middle of the cell R_1 which is rather large, about 2.5 times as long as wide; the subcostal crossvein is proximad of the middle of this cell; the basal section of the radial sector and the R-M crossvein are subequal; R_{4+5} ends at the tip of the wing; petiole of the media is about 2-3 as long as M_2 ; cubitus forks distad of the R-M crossvein; the wing is 4 mm. in length, which is 21-6 times as long as the fore metatarsus. Halteres yellow. A single specimen taken in May by Mr. Wm. Beutenmuller in the Black Mts., N. C.

16. *Mycomya appendiculata* Loew.

1869. *appendiculata*, Loew. Berl. Ent. Zeitschr. XIII. 139.
(*Sciophila*).

Male. Length 3.2 mm. Head and palpi yellowish, vertex dusky; antennæ fuscous black, the scape and first joint of flagellum yellow. Thorax pale yellowish, mesonotum somewhat darker; pile black. Abdomen fuscous black, the posterior margin of each tergite, yellowish; the penultimate segment wholly black or with subfuscous margin. Hypopygium small, yellow, with slender lateral appendages, black. Coxæ and legs pale yellow, tarsi fuscous black. Wings hyaline, cinereous tinged apically and posteriorly; cell R_{2+3} more deeply tinged; veins fuscous; subcostal vein, which is thin and pale basally, ends in the costa; cell R_1 small, the subcostal crossvein is placed proximad of the middle of this cell; petiole of the media over thrice as long as the cell R_1 , but scarcely equaling the length of the cell itself; cubitus forks distad of the R-M crossvein. Halteres yellow. The species has been recorded from New York.

To the above may be added that the fore metatarsus is shorter than the tibia and the middle coxæ are provided with spurs.

17. *Mycomya hirticollis* Say.

1824. *hirticollis*, Say, Long's Exp. St. Peter's River. Appl. 362.
(*Sciophila*).

Length 3.5 mm. Antennæ fuscous, the four basal joints yellow; head black, face, mouth and palpi pale yellowish. Mesonotum with traces of three stripes; pleura yellow with a brown

spot over the hind coxæ. Each tergite brown with both anterior and posterior margins yellow. Wing slightly cinereous tinged. Halteres pale yellowish. Legs yellow, tarsi dusky. Reported by Say from the Northwest Territory.

18. *Mycomya meridionalis* n. n.

1896. *diluta*, Williston, (preoc.) Trans. Ent. Soc. London. 263.
(*Sciophila*).

Male. Length 3 mm. Reddish yellow; abdomen brown. Antennæ about as long as the head and thorax together, somewhat compressed; light brown, the basal joints yellow. Front and face brown or brownish-yellow, palpi brown. Thorax, coxæ and femora reddish or luteous yellow; mesonotum brownish-yellow, with black hairs and bristles. Abdomen brown or yellowish-brown, with black hairs. Tibiæ brown; tarsi blackish; front metatarsi a trifle shorter than their tibiæ; hind tarsi scarcely longer than the tibiæ. Wings tinged with brownish; the costal vein terminates at the tip of R_{4+5} ; cell R_1 very short; furcation of the cubitus very nearly opposite the origin of the radial sector. St. Vincent Isl.

19. *Mycomya flavohirta* Coquillett.

1901. *flavohirta*, Coquillett. Proc. U. S. Nat. Mus. XXIII. 596.
(*Sciophila*).

Male. Length 5 mm. Head black, the face and mouth parts yellow, first two joints of antennæ yellow, the remainder black, compressed, the third joint only slightly longer than broad; thorax and scutellum yellow, polished, the bristles and numerous, rather long hairs also yellow; abdomen polished, yellow, the bases of segments 2 to 5, the whole of the sixth, and apex of abdomen, black; legs yellow, the tarsi brownish; halteres yellow; wings hyaline, cell R_1 about twice as long as broad, cubitus forking far before base of the radial sector; petiole of media 2-7 as long as M_2 ; front tibiæ slightly longer than their tarsi; no coxal spur. N. H.

20. *Mycomya mendax* n. sp.

Male. Length 6 mm. Head black, face, palpi, and base of antennæ yellow, flagellum fuscous, intermediate joints over half again as long as wide gradually decreasing in length toward the apex. Thorax yellow, dorsum with 3 subconfluent black stripes, of which the laterals are anteriorly abbreviated; metanotum and

lower margin of pleura brownish; setæ black, fine hairs pale; 4 scutellar setæ black. Abdomen yellow, tergites black, excepting the wide posterior margins; hairs pale. Hypopygium (fig. 141) yellow with a black margin, resembling that of *M. ornata* Meig., superior forceps (fig. 142s) folded down in the figure, hidden by the large lobular intermediate appendages; the ventral sclerite with short lateral setose lobes (inferior forceps?) and having two strong mesad projecting spines; mesad of these is a pair of pectinate processes each with five or six teeth. Legs yellow, fore metatarsus about a twelfth shorter than the tibiæ; setæ of hind tibiæ about as long as the diameter of the member. Wings hyaline, yellowish tinged, larger veins yellowish brown: subcosta ends in the costa before the distal end of the cell R, which is twice as long as wide; subcostal crossvein near the middle of this cell; R_{4+5} ends at the apex of the wing; petiole of media is $\frac{3}{4}$ as long as M_2 ; cubitus forks under the R-M crossvein; anal vein strong; wing 5.5 mm. long, which is 2.5 times as long as the fore metatarsus. Halteres yellow.

Female. A female taken in cop. with the above differs in being paler (perhaps immature), having only traces of thoracic stripes; abdominal markings pale brown, confined to the basal half of the segments; wing twice as long as the fore metatarsus. One pair taken by Professor Aldrich at Juliaetta, Id. Also one specimen from Muir Woods, Marin Co., California, and another from Selkirk Mts., B. C., taken by Mr. J. C. Bradley.

Var. a. A female specimen from Moscow, Id., collected in June by Professor Aldrich and another collected in Muir Woods, California, by Mr. J. C. Bradley, differ in being rather darker, in having the cubitus fork distad of the R-M crossvein and the subcostal crossvein placed near the basal fourth of the cell R_1 .

Var. b. A female specimen taken in the Sierra Morena Mts., California, by Mr. J. C. Bradley in April differs in having the fore metatarsus .8 as long as the tibia, the fork of the cubitus proximad of the R-M crossvein and the subcostal crossvein distad of the middle of the cell R_1 . It is barely possible that this is the female of *M. calcarata* Coq.

21. *Mycomya nugatoria* n. sp.

nugatoria Wheeler, MS. (*Sciophila*).

Female. Length 3 mm. Face and 2 or 3 basal joints of the robust antennæ pale yellow; palpi and apical joints of antennæ

fuscous, the latter covered with white pubescence. Head back of the insertion of the antennæ opaque black. Thorax very convex; dorsum with scattered long black hairs, the center reddish from the confluence of obsolescent stripes. Scutellum short and broad, bearing 4 bristles. Abdomen dull pale yellow, clothed with black hairs; posterior margins of segments infuscated. Legs pale yellow; median coxa with a large fuscous spot at the apex; tibiæ appearing darker than the femur because covered with denser black hairs. Tarsi infuscated towards their tips. Fore metatarsus 0.8 as long as the tibia; setæ of hind tibia no longer than the diameter of this member. Wing grayish hyaline, with yellowish veins; subcosta ends in the costa about opposite the distal end of the cell R_1 , which is nearly twice as long as wide; subcostal crossvein is near the base of this cell; R_{4+5} ends before the tip of the wing; the petiole of the media is as long as M_2 ; the cubitus forks distad of the R-M crossvein; the wing is 3 mm. long, which is twice as long as the fore metatarsus. Milwaukee Co., Wis. (Prof. Wheeler, col.).

A female specimen from the Black Mts., N. C., taken in May by Mr. Wm. Beutenmuller differs in having dark thoracic stripes and tergites with darker posterior margins; the cell R_1 also is slightly shorter and more distinctly trapezoidal.

22. *Mycomya onusta* Loew. ✓

1869. *onusta*, Loew, Berl. Ent. Zeitschr. XIII. 138. (*Sciophila*).

Female. Length 3.7 mm. Yellowish, pilose, the setæ blackish, the hairs pale. Head yellowish, vertex dusky; scape pale yellow, flagellum fuscous black, the first joint of the latter sometimes pale yellow; palpi subfuscous. Mesonotum with two wide stripes, abbreviated anteriorly, and between them anteriorly may be seen the beginning of a subfuscous median stripe; disk of scutellum subfuscous; pleura with subfuscous spots. Apical half of each tergite fuscous black. Coxæ and legs pale yellow; tarsi fuscous. Wings uniformly cinereous, veins fuscous; subcostal vein which is paler and more slender than the other veins is thickened and darkened at the extremity and ends in the costa; cell R_1 is large, the subcostal crossvein is placed at the middle of this cell; petiole of the media is nearly 1.5 times as long as the cell R_1 , and less than half as long as M_2 ; cubitus forks proximad of the R-M crossvein. Length of wing 3.8 mm. Recorded from the District of Columbia.

23. *Mycomya recurva* n. sp.

Female. Length 5 mm. Pale yellow; face, cheeks, palpi and 5 or 6 basal joints of antennæ rufous yellow, apical joints of antennæ fuscous; front and occiput dull brownish black, dusted with white. Thorax pale yellow, subopaque, appearing as if dusted with white; dorsum with a few sparse, rather long black hairs and 4 distinct reddish brown stripes. The inner pair is approximated, very narrow, beginning on the anterior edge of the dorsum, tapering posteriorly and terminating a short distance in front of the insertion of the scutellum; lateral bands broader, beginning a short distance from the anterior edge of the dorsum and terminating acutely in the posterior edge. Scutellum with pale fuscous disk, bearing 2 moderately long setæ. Pleura somewhat fuscous posteriorly. Metanotum sordid with fuscous. Ground color of abdomen inclining to sulphur yellow; basal 2-3 of the tergum of each segment pale fuscous; a black band runs down the median dorsal line interrupted at the pale edges of the segment. Venter and genitalia uniform pale yellow. Legs pale yellow, lacking the whitish dust of the thorax; posterior coxæ each with an elongate fuscous spot; all the femora at their point of insertion very narrowly but distinctly edged with black; hind tibiæ with a row of about 7 almost equidistant spines on their outer faces. Fore metatarsus less than 1-12 longer than the tibia; setæ of the hind tibia nearly twice as long as the diameter of this member. Wing grayish hyaline, lutescent along the costal margin; subcosta ends in the costa before the distal end of cell R_1 which is about twice as long as wide; subcostal crossvein is at the middle of this cell; R_{4+5} ends at the tip of the wing; the petiole of the media is 0.7 as long as M_2 ; the cubitus forks slightly proximad of the R-M crossvein; the wing is 5 mm. long, which is 2.3 times as long as the fore metatarsus. Wisconsin (W. M. Wheeler, col.).

Another female specimen from this locality differs in having 3 more or less confluent spots on each tergite, forming a wide basal fascia with tridentate margin.

Var. *chloratica* n. var. Wheeler MS. Subcostal crossvein is situated proximad of the middle of the cell R_1 ; subcosta ends in the costa beyond the middle of the cell R_1 which is not twice as long as wide. Milwaukee Co., Wisconsin (W. M. Wheeler, col.).

24. *Mycomya incompta* n. sp.

Female. Length 4.5 to 5 mm. Head black, lower part of face, palpi, scape, and under side of first flagellar joint, yellow; intermediate flagellar joints about twice as long as wide with whitish pubescence; setæ of the head black. Thorax yellow, the 3 subconfluent dorsal stripes, scutellum, metanotum, and lower margin of pleura brown; setæ including those of the scutellum black. Abdomen yellow; the tergites brown with wide yellow posterior margins; hairs pale. Legs yellow, tibiæ and tarsi appear darker; the fore metatarsus about $\frac{1}{4}$ longer than the tibia; setæ of hind tibia about twice as long as the diameter of the member. Wings hyaline, cinereous tinged; subcosta ends in the costa nearly opposite the distal end of cell R_1 which is about twice as long as wide; the subcostal crossvein is placed very slightly distad of the middle of this cell; R_{4+5} ends beyond the tip of the wing; the petiole of the media is $\frac{3}{4}$ as long as M_2 ; the cubitus forks proximad of the R-M crossvein; the wing is 4 mm. in length, which is 2 1-7 times as long as the fore metatarsus. Halteres yellow.

Two specimens taken by Mr. J. C. Bradley in the Selkirk Mts. in August; one from Ithaca, N. Y.; and one from Capen, Maine. (Johnson, col.).

25. *Mycomya angulata* Adams.

1903. *angulata*, Adams. Kas. Univ. Science Bul. II. 22. (*Scio-phila*).

Female. Length 6 mm. Yellow, subshining; head black, anterior part of front, base of antennæ, face and mouth-parts yellow; thorax yellow, mesonotum with 3 subcoalesced fuscous fasciæ, the middle one abbreviated behind, the lateral ones in front, pile, rather long and yellow, large spot on the pleura above middle coxæ brown; abdomen yellow, base of segments brown, pile black; legs light yellow, anterior tibiæ shorter than their tarsi; tips of tarsi fuscous; wings grayish hyaline, cell R_1 twice as long as broad, R_{2+3} angulate, its apex turned towards base of wing, subcostal crossvein slightly beyond middle of cell R_1 . Manitou Park, Colo., August. It is near *S. flavohirta* Coq., but differs in the markings of the thorax, length of anterior tibiæ, and the angulated R_{2+3} .

ADDENDA.

Monoclona furcata n. sp.

Resembles *elegantula* in coloring but differs in the form of its hypopygium, the slightly greater length of the fore metatarsus relative to its tibia, and in the relative positions of apices of Sc , R_1 and R_{4+5} .

Male. Length 4 mm. Head black; palpi, face, scape of antenna and the 2 basal joints of flagellum yellow, the remaining flagellar joints fuscous. Thorax yellow, the mesonotum with 3 blackish stripes, metanotum, some spots on the pleura and the sternum more or less infuscated; hairs pale. Each abdominal tergite largely brownish, yellowish at the incisures, venter yellow; hypopygium dark brown, each limb of the forceps with 2 strong hooks united to a broad base to which is attached a very slender fishhook-like process projecting mesad. Legs yellow, tarsi somewhat darker; fore metatarsus over 0.95, the second fore tarsal joint over half as long as the fore tibia; tarsal claws each with a strong tooth at the base. Wings yellowish hyaline, veins dusky yellow; the small cell shorter than wide; the distance from the apex of Sc_1 to R_1 is over 2.5 times the distance from R_1 to R_{4+5} ; in *elegantula* these distances are to each other as 2 to 1. Stem of the halteres yellow, the elongate knob black.

A single specimen taken at Orono, Maine, May 26, 1910.

Mycomya maxima.

Female. A specimen of this species taken in Orono, Maine, June, 1910, resembles the male described on page 179 in wing venation, the subcosta ending in the costa. The dorsal mark on each tergite is rather narrower than in the previously described specimens. I am now inclined to think that the female described before is abnormal in venation. In the table given on page 169 this species will fall into the couplet with *mendax*, from which it may be distinguished by its relatively longer fore metatarsus.

Plate.

- Fig. 83. *Eudicrana obumbrata*.
 " 84. *Monoclona elegantula*.
 " 85. *Tetragoneura nitida*.
 " 86. *Sciophila* (*Lasiosoma*).
 " 87. *Paratinia recurva*.
 " 88. *Polylepta obediens*.
 " 89. " *nigellus*.
 " 90. " *leptogaster* (after Winnertz).
 " 91. *Empalia* (after Winnertz).
 " 92. *Dziedzickia pullata*.
 " 93. *Hadroneura* (after Lundström).
 " 94. *Diomonus*.

Plate.

- Fig. 95. *Neœmpheria nepticula*.
 " 96. " *impatiens*.
 " 97. " *balioptera*.
 " 98. " *macularis*.
 " 99. " *indulgens*.
 " 100. " *illustris*.
 " 101. *Mycomya littoralis*.
 " 102. " *obliqua*.
 " 103. " *sequax*.
 " 104. " *brevivittata*.
 " 105. " *tantilla*.
 " 106. " *maxima*.

Plate.

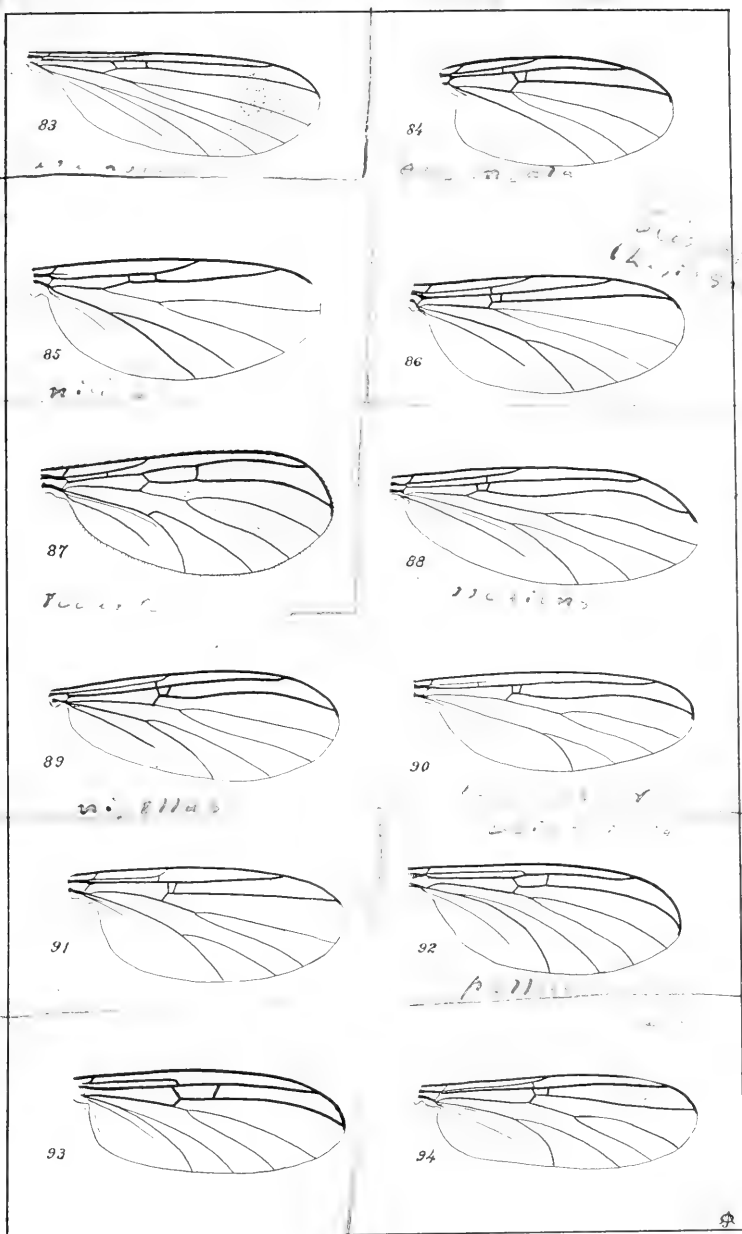
Hypopygia.

- Fig. 107. *Monoclona elegantula*. One limb of forceps. x 200.
 " 108. *Tetragoneura nitida*. Dorsal aspect. x 200.
 " 109. *Sciophila* (*Lasiosoma*) *habilis*. Dorsal aspect. x 200.
 " 110. " " *glabana*. Ventral aspect. x 100.
 " 111. *Eudicrana obumbrata*. x 100.
 " 112. *Sciophila* (*Lasiosoma*) *severa*. Dorsal aspect. x 200.
 " 113. " " *hebes*. Dorsal aspect. x 200.
 " 114. *Diomonus magnificus*. One limb of inferior forceps. x 100.
 " 115. *Sciophila* (*Lasiosoma*) *nugax*. Dorsal aspect. x 200.
 " 116. " " *impar*. Mesal aspect. x 200.

- Fig. 117. *Sciophila (Lasiosoma) novata*. Ventral aspect. x 100.
 " 118. *Polylepta obediens*. Ventral aspect. x 200.
 " 119. *Sciophila (Lasiosoma) novata*. Dorsal aspect. x 100.
 " 120. *Dziedzickia pullata*. Dorsal aspect. x 100.
 " 121. *Polylepta nigellus*. Ventral aspect. x 100.
 " 122. *Sciophila (Lasiosoma) glabana*. Ventral aspect of
 dorsal sclerite. x 200. *Dorsal*
 " 123. *Diomonus bifasciatus*. Ventral aspect. x 100.
 " 124. *Paratinia recurva*. Dorsal aspect. x 200.
 " 125. *Diomonus pulcher*. Ventral aspect. x 100.

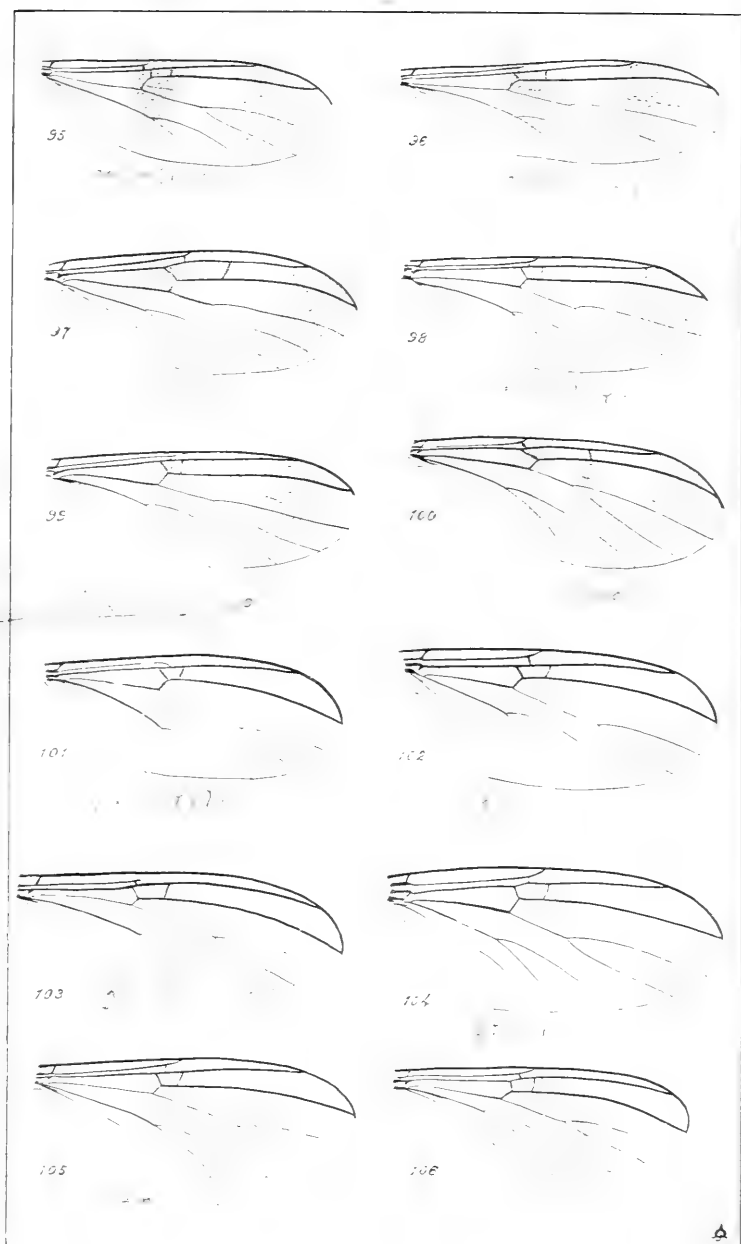
Plate.

- Fig. 126. *Necempheria illustris*. Dorsal aspect. x 85.
 " 127. " " Lateral aspect, limb of in-
 ferior forceps. x 85.
 " 128. " *indulgens*. Ventral aspect. x 85.
 " 129. " *balioptera*. Oblique lateral aspect. x 35.
 " 130. " *macularis*. Dorsal aspect. x 110.
 " 131. " *impatiens* (ovipositor). Lateral aspect.
 x 65.
 " 132. *Mycomya imitans*. Lateral aspect. x 65.
 " 133. " *obliqua*. Dorsal aspect. x 65.
 " 134. " *brevivittata*. Dorsal aspect. x 65.
 " 135. " *marginalis*. Ventral aspect. x 65.
 " 136. " *imitans*. Dorsal aspect. x 65.
 " 137. " *maxima*. Dorsal aspect. x 65.
 " 138. " *sigma*. Lateral aspect. x 35.
 " 139. " *biseriata* (ovipositor). Lateral aspect.
 x 35
 " 140. " *tantilla*. Open. x 65.
 " 141. " *mendax*. Dorsal aspect. x 35.
 " 142. " " Limb of superior forceps (s)
 and of intermediate appen-
 dage. (i) x 110.
 " 143. " *tantilla*. Lateral aspect of ventral sclerite. x 65.
 " 144. " *littoralis*, var. *frequens*. Dorsal aspect.
 x 35.
 " 145. " " Superior forceps. x 110.
 " 146. " *sequax*. Dorsal aspect. x 85.
 " 147. " sp. Lateral aspect. x 65.

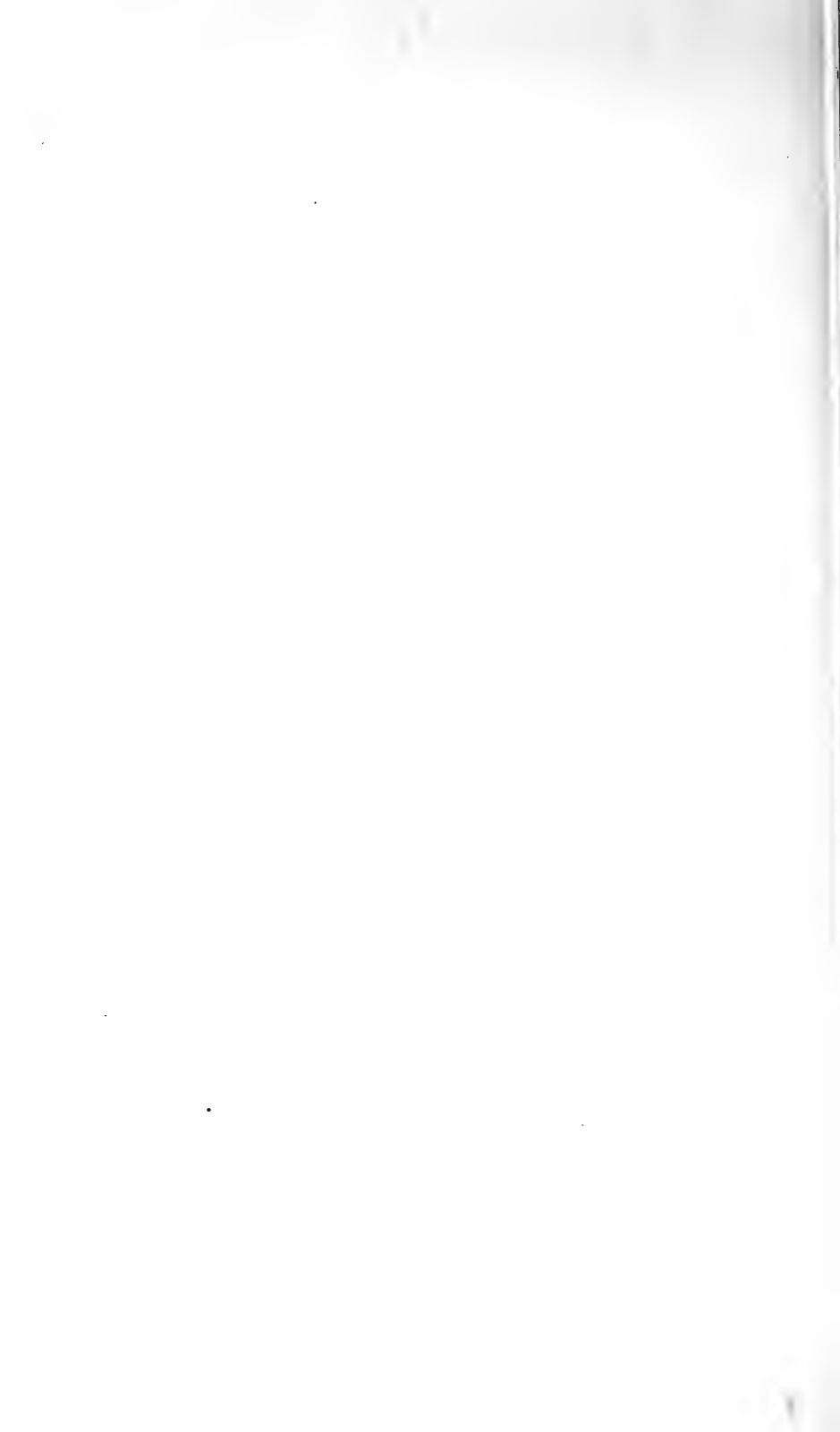


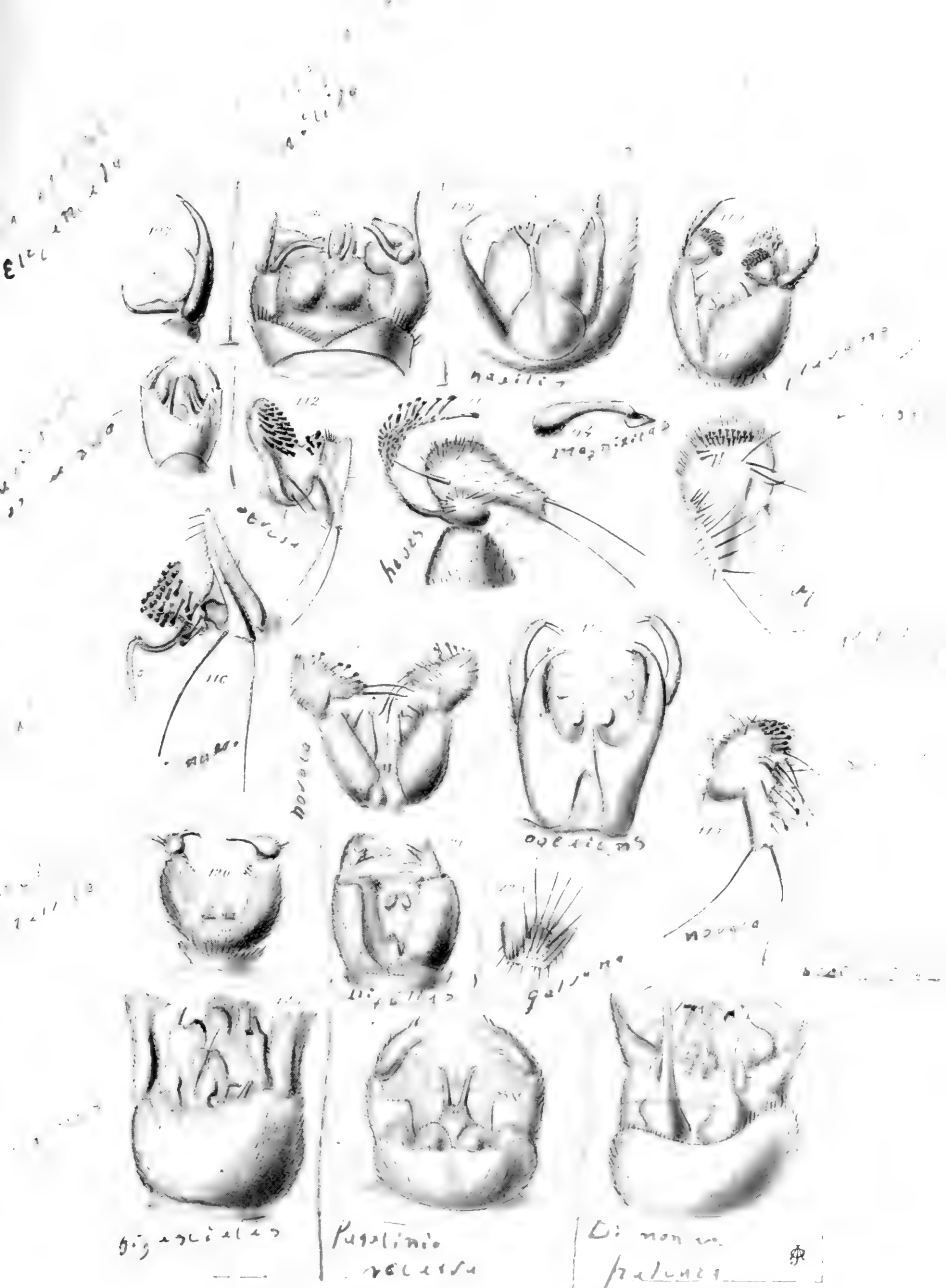
83, Eudicrana; 84, Monoclona; 85, Tetragoneura; 86, Sciophila (*Lasiosoma*); 87, Paratinia; 88-90, Polylepta; 91, Empalia; 92, Dziedzickia; 93, Hadroneura; 94, Diomonus.





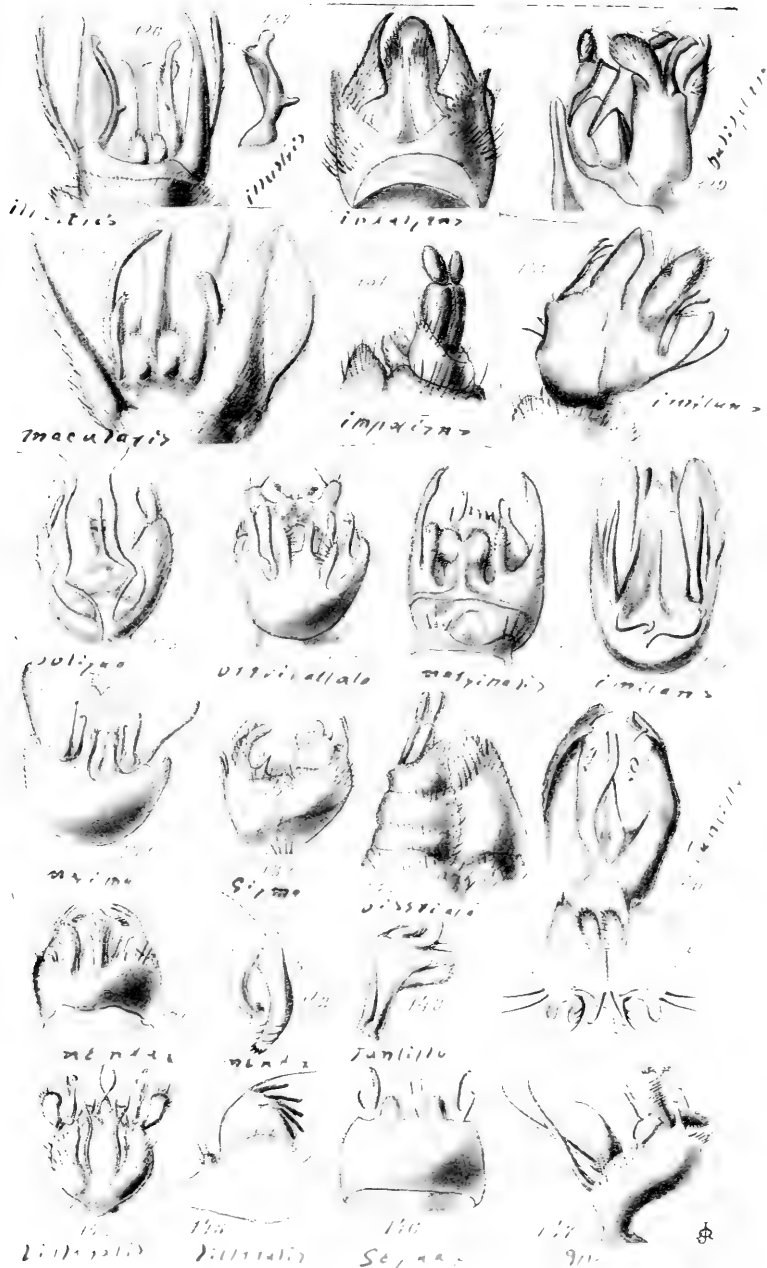
95-100, *Neoempheria*. 101-106, *Mycomya*.





107, Monoclona; 108, Tetragoneura; 109, 110, 112, 113, 115, 116, 117, 119, 122, Sciophila (*Lasiozona*); 111, Eudicrana; 114, Diomonus; 118, 121, Polylepta; 120, Dziedzickia; 123, 125, Diomonus; 124, Paratinia.





126-131, *Neoempheria*. 132-147, *Mycomya*.





University of Maine.

Maine Agricultural Experiment Station

New Series 321-2

ORONO

BULLETIN No. 196

DECEMBER, 1911

THE FUNGUS GNATS OF NORTH AMERICA Part III

Mycetophilinae

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BULLETIN No. 196.

THE MYCETOPHILIDÆ OF NORTH AMERICA.

PART III.*

THE MYCETOPHILINÆ.

O. A. JOHANNSEN.

The Mycetophilinæ embrace many genera which resemble each other in possessing an unbranched radial sector and in lacking the M-Cu crossvein. The subfamily is very probably of polyphyletic origin apparently having arisen for the most part from several Sciophilina genera. It is therefore not a natural group but for practical purposes a very convenient one. In nearly all the genera the anal furrow which simulates a longitudinal vein lying immediately behind the cubitus, is present, the first anal vein though frequently strong does not reach the wing margin in any recent North American form and the second anal is less distinct or vestigial.

In all the North American genera there are 2+14 antennal joints except in the genus *Cordyla*. The middle ocellus which is present in most, is absent in *Mycetophila* and *Cordyla* and rarely present in *Dynatosoma*, and *Exechia*. The thorax is high and arched and the abdomen more or less compressed. There is one spur at the apex of each fore tibia and a pair on each of the middle and hind tibiæ. The claws have one or more basal teeth. In some *Boletina* and *Coelosia* one claw is peculiarly modified.

It is evident that there are several natural groups of genera which may be tentatively arranged according to the following

* Papers from the Maine Agricultural Experiment Station, Entomology No. 50. Parts I and II were published in Bulletins 172 and 180 respectively. Where the types of the new species are to be found will be stated in Part IV, now ready for the press.

scheme, though a study of the larval characters may somewhat modify this grouping.

SERIES I: *With the setulæ of the wings not arranged in distinct parallel rows; subcosta usually elongate.*

1. With a simple, unbranched cubitus. *Acnemia, Azana.*
2. With undulating Rs, detached M₁ and with numerous setæ among the setulæ of the wing. *Neuratchia, Odontopoda.*
3. No defective veins, Rs arises before middle of wing, subcosta ends in the costa; weak tibial setæ. *Boletina group.*
 - a. Proboscis elongate. *Gnoriste.*
 - b. Proboscis short. *Leptomorphus, Allocotocera.*
Boletina, Phthinia, Sackenia,
Coelosia.
4. Strong tibial setæ.
 - a. Middle ocellus lower than laterals; venation defective. *Rondaniella.*
 - b. Middle ocellus higher than laterals, the latter close to eye margin. *Leia.*
5. Subcosta does not end in the costa.
 - a. Lateral ocelli remote from eyes. *Syntenna, Megophthalmidia.*
 - b. Lateral ocelli nearly contiguous to eyes. *Docosia.*

SERIES II: *Setulæ of the wings arranged in parallel rows; subcosta usually short.*

1. Posterior basal seta of hind coxæ wanting, tibial setæ small.
 - a. Antennæ and palpi normal. *Anatella, Trichonta.*
 - b. Antennæ short, usually less than 15 jointed, second palpal joint enlarged. *Cordyla.*
2. Posterior basal seta of hind coxa present. *Genera 21 to 26.*
3. Posterior basal seta of hind coxa absent, tibial setæ stout.
 - a. Cubitus branched. *Genera 27 to 31.*
 - b. Cubitus simple. *Sceptonia, Zygomyia.*

In this as well as in the lower subfamilies the parts of the hypopygium furnish the most distinctive and easily recognizable specific characters. The homologies of these parts are as yet too uncertain and the terminology too unsatisfactory and inadequate to attempt descriptions and I have therefore only given figures illustrating specific characters. In comparing a specimen with a figure it usually will be necessary to examine a KOH preparation of the hypopygium which must be moved about under a supported cover glass until it occupies a position similar to that represented in the illustration, otherwise an erroneous impression is obtained. The ovipositor of the female in some genera appears to possess good characters but in gen-

eral I have refrained from naming specimens represented by females alone.

The wing venation is usually not described but instead photographic reproductions are given of most species. The term metatarsus for convenience is retained to designate the first tarsal joint though its use in this sense is etymologically incorrect. To avoid unnecessary repetition some of the statements made in the synoptic tables of genera and species are not repeated in the description and hence it will be necessary to consider the characters given in the keys, in the tables of leg measures, together with the figures of wing and hypopygium and the diagnosis of the species, combined as constituting the description.

Following the description of a species is given in brackets the initials of the collector: J.M.A., (Prof. J. M. Aldrich); J.B., (Prof. John Barlow); J.C.B., (Prof. J. C. Bradley); C.W.J., (Mr. C. W. Johnson); J.G.N., (Prof. J. G. Needham); W.M.W., (Prof. W. M. Wheeler).

Nomenclature. The arrangement of genera given here is practically the same as that adopted by me in *Genera Insectorum* Fasc. 93, to which the reader is referred for the synonymy. It may be well to state that in this work several of Rondani's genera were recognized which necessitated a few changes; thus *Rondaniella* was substituted for the *Leia* of Winnertz, *Neuratelia* for *Anaclinia*, *Leia* for *Necoglyphyoptera*, while *Brachycampta* was united with *Allodia*.

Economic relations. As far as known all of the species of this subfamily pass the earlier stages in mushrooms or decaying wood. The larvæ of several species of *Erechia* and of *Mycetophila* are occasionally found in cultivated mushrooms, *M. punctata* quite frequently. This species is also particularly common in wild mushrooms, at times very few plants escaping infestation. Mushroom growers need expect but little trouble from these pests if they will provide their cellars with fine mesh wire screens.

The early stages have been briefly characterized in the introduction to Part I. Descriptions of the larvæ of various species and their habits are reserved for publication elsewhere.

TABLE OF GENERA. *Mycetophilic*

- a. Proboscis much longer than the head.
- b. Media and cubitus unbroken; media forks a very short distance beyond the crossvein; palpi situated near apex of proboscis. (Figs. 169, 170). 1. *Gnoriste*.²⁵⁻⁸
- bb. Bases of media and cubitus defective. (West Indies). 2. *Probolæus*.²⁵⁻⁸
- aa. Proboscis not elongate.
- b. Cubitus not forked or at most its anterior branch but faintly indicated.
- c. Lateral ocelli widely remote from eye margin; costa extends beyond the tip of Rs.
- d. Subcosta extends at least to base of Rs; media 2-branched. (Fig. 171). 3. *Acnemis*.²⁵⁻⁸
- dd. Subcosta short; media simple. 4. *Azana*.²⁵⁻⁸
- cc. Lateral ocelli nearly or quite contiguous to eye margin.
- d. Cell R_1 very narrow; Rs strongly arched. 32. *Sceptonia*.²⁵⁻⁸
- dd. Cell R_1 not unusually narrow; Rs nearly straight. 33. *Zygomyia*.²⁵⁻⁸
- bb. Cubitus with 2 branches, anterior branch may be detached at base. *Platipros thioygne* 322-III
- c. Anterior branches of both media and cubitus detached at base. (Fig. 173). (Leia Winnertz). *Leicella* 322-III 5. *Rondaniella*.²⁵⁻⁸
- cc. Both media and cubitus forked, but immediate base of the anterior branch of one of them may be obliterated.
- d. Subcostal vein ends in the costa and is at least half as long as the basal cell R.
- e. Basal section of anterior branch of media wanting.
- f. Subcostal crossvein (Sc_2) present though faint, costa slightly produced beyond tip of Rs. (Fig. 174). (=Anaclina). 6. *Neuratelia*.²⁶⁻⁴
- ff. Subcostal crossvein (Sc_2) absent, costa not produced beyond tip of Rs. 7. *Odontopoda*.²⁶⁻⁴
- ee. Basal section of anterior branch of media present.
- f. Subcostal crossvein (Sc_2) present.
- g. Cubitus forks under or proximad of fork of media.
- h. Subcostal vein enters the costa beyond, at, or little before the base of the radial sector.
- i. Fore metatarsus distinctly longer than its tibia; petiole of the media about $\frac{1}{2}$ as long as the anterior branch; costa scarcely produced beyond tip of Rs. (Fig. 177). 8. *Leptomorphus*.²⁶⁻⁴
- ii. Fore metatarsus shorter than its tibia.
- j. Subcostal vein prolonged far beyond the base of the radial sector; anal vein stout; petiole of media about $\frac{1}{2}$ as long as the anterior branch. (Fig. 178). 9. *Allocotocera*.²⁶⁻⁴

* Eugnoriste is a Sciarid.

† In Manota, which is a Sciarid, the petiole of the media is wanting.

- jj. Subcostal vein not produced far beyond the base of the radial sector; petiole of the media less than $\frac{1}{2}$ as long as the anterior branch. (Fig. 179). ✓ 10. *Boletina*. E
- hh. The distance between the tip of the subcostal vein to the base of the radial sector is at least 1-4 the breadth of the wing at the widest part. (Fig. 193). (Neoglaphyoptera). ✓ 11. *Leia*. 278 E
- gg. Cubitus forks distad of the media, ocelli in a transverse row on the broad front.
- h. Subcostal crossvein proximad of base of Rs. (Fig. 209). 12. *Phthinia*. 290
- hh. Subcostal crossvein distad of base of Rs. *Megalopelma* (See 12, *Phthinia fraudulenta*). 291
- ff. Subcostal crossvein (Sc_2) absent. 322 M
- g. Cubitus forks proximad or under fork of the media.
- h. Anal vein produced to the margin (Fossil). 13. *Sackenia*. 292
- hh. Anal vein not produced to the margin. (Fig. 243). 10. *Boletina*, pt. 267
- gg. Cubitus forks distad of the fork of the media.
- h. The lateral ocelli remote from the eye margin; the posterior basal seta of hind coxa absent. (Fig. 210). ✓ 14. *Coelosia*. 292 E
- hh. The lateral ocelli close to the eye margin; subcostal vein short only rarely reaching costa; posterior basal seta of hind coxa present. 24. *Phronia*, part.
- dd. Subcostal vein if long then ending either in R_1 or with its end free, usually short.
- e. Costal vein extends noticeably beyond tip of Rs (if but slightly then the subcostal vein is long and ends in R_1).
- f. Lateral ocelli separated from the eye margins by a distance sub-equal or greater than the diameter of the ocellus; posterior basal seta of hind coxa wanting.
- g. Subcostal vein at least $\frac{1}{2}$ as long as the basal cell R, and ends free or in R_1 . (Fig. 213). 15. *Syntemna*. 295
- gg. Subcostal vein less than $\frac{1}{2}$ as long as the basal cell R; base of fork of cubitus proximad of base of the R-M crossvein; anal vein very short. (Fig. 216). 16. *Megophthalmidia*. 298
- ff. Lateral ocelli nearly or quite continuous to the eye margin.
- g. Subcostal vein less than $\frac{1}{4}$ the length of the basal cell R and ending in R_1 , costa produced far beyond the tip of Rs; posterior basal seta of hind coxa absent. (Fig. 217). 18. *Anatella*. 301

- gg. Subcostal vein either longer than $\frac{1}{4}$ of basal cell or it does not end in R_1 .
- h. The R-M crossvein is in the same line as the second section of the radial sector, thus apparently forming the basal section of the latter; fork of the media slightly distad of the fork of the cubitus or under it, costa produced beyond R_s . (Figs. 218, 241). 17. *Docosia*. E
- hh. The R-M crossvein makes a distinct angle with second section of the radial sector (R_s).
- i. Subcostal vein more than $\frac{1}{2}$ as long as the basal cell R ending in R_1 , costa produced little if any beyond the tip of R_s ; basal seta of hind coxa wanting.
- j. Setæ of hind tibia short, not much longer than the diameter of the tibia; three ocelli, middle one small. (Fig. 221). 19. *Trichonta*. E
- jj. Setæ of hind tibiæ usually arranged in 3 rows, stout, more than twice as long as the diameter of the tibia; middle ocellus rarely present; costa not produced beyond R_s . 26. *Dynatosoma*. E
- ii. Subcostal vein less than $\frac{1}{2}$ as long as basal cell R.
- j. Cubitus forks noticeably distad of fork of the media, the branches of the former widely divergent; costa but little produced; anal vein short, tibial setæ small; basal seta of hind coxa present. 24. *Phronia*, part.
- jj. Cubitus forks under or proximad of the fork of the media; branches of the former make a very acute angle with each other and are but slightly divergent, setæ of hind tibiæ strong, more than twice as long as the diameter of the tibia; ocelli 3; basal seta of hind coxa absent. 29. *Epicrypta*, part. E
- ee. Costa does not extend beyond tip of radial sector (R_s).
- f. Second palpal joint much enlarged, swollen, flattened ovate; antennæ very short, but little longer than the head, 11 to 16 jointed; ocelli 2; basal seta of hind coxa wanting. (Fig. 224). 20. *Cordyla*. E
- ff. Second palpal joint not distinctly swollen, antennæ longer than the head.
- g. Posterior basal seta of hind coxa present; ranges of setæ on hind tibiæ slender, (except in *Brachypeza*) usually little if any longer than the diameter of the tibia.

- h. Intermediate antennal joints closely sessile; annular or torus like; tibiae stout, noticeably enlarged at the ends, the setae moderate; base of fork of the cubitus proximad of the proximal end of the R-M crossvein; subcostal vein ending in R_1 ; wing sometimes with markings. (Fig. 229). 21. *Brachypeza*.
- hh. Antennal joints usually subcylindrical; and otherwise not with the above combination of characters; wings unmarked except in *Telmaphilus*.
- i. Cubitus forks proximad of the fork of the media.
- j. Anal vein very stout and ends abruptly, usually a little beyond the fork of the cubitus, angle between the branches of cubitus very acute at the base, the lower branch beyond its middle suddenly diverging from the upper branch, base of fork at or proximad of proximal end of the R-M crossvein. (Fig. 230). 22. *Rhymosia*.
- jj. Anal vein slender (Fig. 238) (including *Brachycampta*). 23. *Allodia*.
- ii. Cubitus forks distad of the fork of the media.
- j. The media forks distad of the end of the basal cell R; costa extends very little beyond end of the radial sector; ocelli 3, middle one very small.
- k. Wings hyaline; subcosta less than $\frac{1}{2}$ length of basal cell. 24. *Phronia*.
- kk. Apex of wings more or less clouded or smoky; subcosta end free beyond middle of basal cell. 25. *Telmaphilus*.
- jj. The media forks proximad of the end of the basal cell R, the subcosta ends free; middle ocellus present or absent. (Fig. 242). 26. *Exechia*.
- gg. Posterior basal seta of hind coxa absent; the ranges of setae on the hind tibiae conspicuously stout, setae at least twice as long as the diameter of the tibiae; crossvein usually with dark spots, wing often fasciate.
- h. Subcostal vein ends in R_1 , branches of the cubitus noticeably divergent; usually three ranges of setae on hind tibiae; middle ocellus usually absent. 27. *Dynatosoma*.
- hh. Subcostal vein ends free.
- i. Hypopygium of the male conspicuously large and husk like; female with a fringe of long setae on ventral side of sixth abdominal segment; middle ocellus present; branches of cubitus subparallel at end. 28. *Opistholoba*.

ii. Genitalia not as described above.

j. Two ocelli, none in the middle; costa not produced beyond the tip of the radial sector; branches of cubitus usually parallel on apical third. (Fig. 245). *31. Mycetophila.*

jj. Three ocelli present, middle one minute.

k. Branches of the cubitus make a very acute angle with each other and slightly divergent; fork usually proximad of the fork of the media; costa usually slightly produced beyond the tip of the radial sector.

29. Epicrypta.

kk. Branches of the cubitus more or less convergent, rarely parallel, fork frequently distad of the fork of the media; costa ends at tip of Rs.

30. Mycothera.

i. Genus *Gnoriste* Meigen. *E* ✓

Syst. Besch. i. 243. 1818.

Proboscis slender, longer than head and thorax combined; the palpi near the apex (Part I, fig. 53); ocelli 3, the laterals remote from the eye margin. Wings large; costa produced beyond tip of the radial sector (Rs); subcostal vein long; subcostal crossvein (Sc₂) present; fork of the cubitus proximad of the fork of the media; anal vein incomplete. (Fig. 169).

Table of Species.

a. Proboscis over .7 the length of the insect to tip of abdomen; cubitus forks proximad of the proximal end of the crossvein, somewhat variable; costa distinctly produced beyond the tip of Rs; subcosta ends at or proximad of the base of Rs. N. Y.; Calif. (Fig. 169). *1. megarrhina.* ✓

aa. Proboscis less than $\frac{5}{8}$ of the length of the insect.

b. Proboscis over half the length of the insect; fore metatarsus and its tibia subequal in length. *2. groenlandica.*

bb. Proboscis less than $\frac{1}{2}$ as long as the insect; fore metatarsus shorter than the tibia.

c. Cubitus forks slightly proximad of the base of Rs; the subcostal crossvein indistinct, proximad of the middle of the subcosta. (Fig. 170). *3. macra* n. sp.

cc. Cubitus forks nearly under the base of Rs; the subcostal crossvein distad of the middle of the subcosta. *4. apicalis.*

G. dentoni Scudder is a fossil from Utah.

1. *Gnoriste megarrhina* Osten Sacken. ✓

Bull. U. S. Geol. Survey. Terr. III. 193. 1877.

Male and female. Length of body 7 mm.; of the proboscis 5.5 mm.; face deep velvet black, opaque; antennæ brown, second joint somewhat reddish; proboscis brown; vertex black, with a slight gray pollen; thorax brownish-yellow, with 3 black stripes on the dorsum, the intermediate geminate; in the male the thorax is nearly entirely black; abdomen dusky, in the female the segments with posterior margins yellowish. Legs yellow; tarsi infuscated, in the male one claw of each foot modified, in the fore and middle feet this claw is deep spoon-shaped, with fluted sides and serrate margin, in the hind foot it is more slender, ribbed. Wings with slight yellowish tinge, a light gray shadow along the hind margin beginning at the apex. Halteres yellow. (Fig. 169). Hypopygium (Figs. 137, 139). "California," Mass. (C.W.J.) and Ithaca, N. Y. May and June.

2. *Gnoriste groenlandica* Lundbeck.

Dipt. groenl. I, Vidensk. Meddel. nat. Foren. i. Kbhvn. 1898.

Male and female. Length 6.5 to 7.5 mm.; proboscis 4 mm. Coloring similar to *G. megarrhina*, but more cinereous. Wings hyaline slightly yellowish tinged, venation as in *G. apicalis* except that the cubitus forks nearer the base of the wing. Fore metatarsus and its tibia subequal in length. "Greenland."

3. *Gnoriste macra* n. sp.

Male. Length $6\frac{1}{2}$ mm; proboscis 2 mm. Black, shining, including front and vertex; proboscis, palpi and antennæ brown; thorax with yellow hairs; legs including coxæ yellow, tarsi darker; one claw of fore and middle foot modified as in *G. megarrhina*, the hind foot is broken in the single male specimen. Wings hyaline with yellow tinge along costal margin (Fig. 170). Halteres yellow. Hypopygium yellowish resembling that of *megarrhina*, differing chiefly in the form of the forceps (Fig. 138).

Female. In coloring similar to the male but the thorax is yellow to brown with 3 shining black subconfluent dorsal stripes. Tarsal claws not modified. In both sexes the fore metatarsus is about $\frac{7}{8}$ as long as the tibia. White Fish Bay, Wisconsin (W.M.W.) May.

4. *Gnoriste apicalis* Meigen.

Syst. Besch. I. 243: 1. 1818.

Male and female. Length 7-8 mm. Coloring as in *G. macra* from which it differs in wing venation, the subcostal crossvein being distad of the middle of the subcosta, and the cubitus forks under the base of the radial sector. The tarsi of the fore legs twice as long as the corresponding tibiae; the fore tibia about 1-8 longer than its metatarsus. "Europe." Said to occur also in Alaska and Colorado.

2. Genus *Probolæus* Williston.

Trans. Ent. Soc. London, p. 261. 1896.

Proboscis more than half of the length of the body, directed downwards and forwards, composed of five slender bristles; palpi wanting. Face very narrow, ocelli apparently absent. Abdomen slender, longer than the wings. Legs elongate, hind legs stouter, femora thickened, and the tibia clubbed. Neuration defective, the proximal portion of the media and the anterior branch of the cubitus wholly invisible; anal vein apparently absent; costa reaches a considerable distance beyond the tip of the radial sector. It is possible this genus should be placed with the *Sciarinæ*.

Probolæus singularis Williston.

Trans. Ent. Soc., London, 261, pl. 8, fig. 15. 1896.

Male. Length 4-5 mm. Front, face and occiput black; antennæ brown, the basal joints somewhat yellowish. Mesonotum opaque deep reddish brown, the humeri and postalar callosities yellowish; pleura brown or yellowish-brown, shining. Abdomen black, the first segment and a posterior band on the second, third and fourth segments yellow. Wings nearly hyaline, lightly clouded on the outer part. Legs, including coxæ, light yellow; the tarsi and the thickened portion of the hind tibiae infuscated or blackish. Halteres yellow. "St. Vincent Island. Altitude 1800 feet."

3. Genus *Acnemia* Winnertz. ✓ E

Verh. Zool.-bot. Ges. Wien, XIII. 798. 1863.

Ocelli 3 in number placed high upon the front, the laterals remote from the eye margin. Legs moderately long, stout; the

femora, particularly the hind pair, compressed, all tibiae with weak lateral setae. The fore tibiae have one range, the middle tibiae 3, and the hind tibiae 2 ranges of setae, those on the inner side very minute. Wing oval; the costa extends far beyond the tip of the radial sector, ending before the tip of the wing; subcosta long; subcostal crossvein (Sc_2) present; the short basal cell ends proximad of the fork of the media; cubitus not branched; anal vein vestigial. (Figs. 171, 172).

Table of species.

- a. Wings with brown crossband extending from apex of R_1 across the wing; a spot below the cubitus near apex. Length 5mm. Calif.
 - 1. *varipennis*.
- aa. Wings without bands.
 - b. Black, coxae and legs yellow; costa produced 1-3 of distance to M_1 ; Md.; N. Y., Wash.
 - 2. *psylla*. ✓
 - bb. Yellow, abdomen fasciate; costa produced less than 1-4 distance to M_1 . N. J., N. Y., Mass.
 - 3. *flaveola*. ✓

1. *Acnemia varipennis* Coquillett.

Proc. Wash. Ent. Soc. VI. 169. 1904.

Female. Length 5mm. Yellow; the antennae beyond the second joint, a circle around each ocellus, a spot in front of each wing, the breast largely, a streak at the extreme apex, 2 longitudinal vittae on lower half of metanotum, a spot in front of the halteres, the abdomen except bases of segments and the genitalia, the tarsi except their bases, and the knob of the halteres, black; a pair of widely separated brownish subdorsal vittae on the mesonotum; hairs and bristles chiefly yellow. Wings grayish hyaline, tinged with yellow along the costa, base of radial sector clouded with brown, a brown crossband extends from apex of cell R_1 to apex of cell M_2 , becoming grayish posteriorly, a large brown spot along under side of cubitus before its apex. "Mountains near Claremont, Calif."

✓ 2. *Acnemia psylla* Loew.

Berlin. Ent. Zeitschr. XIII. 148. 1869.

Male. Length 2.5 mm. Black, shining, pile yellowish. Head black; antennae dusky, pale toward the base. Hypopygium rather prominent, blackish (Fig. 141). Coxae and legs yellowish, trochanters each with a black spot, tibial spurs yellow;

tarsi subfuscous; fore metatarsus about .9 as long as its tibia. Wings grayish tinged, the heavier veins fuscous, the others paler (Fig. 171). Halteres black, with yellow peduncle. "Md." and Ithaca, N. Y. ~~171~~

Var a. In a specimen from Washington (J.M.A.) the costa is slightly less produced and the dorso-mesal process of the lateral sclerite of the hypopygium acute at apex (Fig. 140 d). In the eastern species this part (Fig. 141 d) is serrate. The western specimen may represent a different species.

3. *Acnemia flaveola*. Coquillett. ✓

Proc. U. S. Nat. Museum, XXIII, 598. 1901.

Female. Length 3 mm. Yellow, the antennæ and tarsi becoming brown toward their apices, segments 2 to 6 of abdomen each with a median brown fascia, shortest on the second and third; a brown dot on under side of each trochanter; fore metatarsus less than 7-8 as long as its tibia; wings hyaline (Fig. 172). "N. J.," Mass., (C.W.J.); R. I., (J.B.); N. C., (C. U. Coll.); Ithaca, N. Y. ~~172~~

4. Genus *Azana* Walker.

Insect. Brit. Diptera. III. 26. 1856.

Ocelli 3, high on the front, the laterals widely remote from the eye margin. Legs stout, the femora compressed; fore tibiæ without, the middle and hind pairs each with 2 ranges of delicate setæ. Wings oval; the costa produced beyond the tip of the radial sector. Subcostal vein is shorter than the humeral crossvein and ends free. R_1 ends a little distad of the middle of the wing, the radial sector arises at about 1-3 the wing length from the base; the R-M crossvein is long, longitudinal in position, forming apparently the beginning of the radial sector; both media and cubitus are simple; anal vein wanting.

Azana sp.

I have seen a single defective specimen from Maine of a member of this genus.

5. Genus *Rondaniella* Johannsen. ✓

Genera Insectorum, Fasc. 93. 66. 1909.

Leia (sensu Winnertz nec Rondani). Verh. Zool.-bot. Ges. Wien. XIII. 792. 1863.

Ocelli 3 in number, placed high upon the front, laterals remote from the eye margin. Legs strong, hind tibiae with 3 ranges of strong setae outwardly, the middle tibiae each with a single long seta on the flexor surface beyond the middle. Wings elongate oval; subcostal vein ends at about 1-3 the length of the wing, the subcostal crossvein (Sc_2) wanting; the costa ends far beyond the tip of the radial sector, but does not reach the apex of the wing; basal cell R is about half the length of the wing; the anterior branches of both media and cubitus are detached at the base (Fig. 173).

Table of species.

- a. Petiole of the media noticeably longer than the cell in the fork, which is wide open at the base; M_1 not distinctly sinuate. (Fig. 173). 1. *abbreviata*. ✓
 - aa. Petiole of the media and the cell subequal, the cell narrowly open at the base, M_1 sinuate. 2. *sororcula*. ✓
- punctata* Bellardi and *unicolor* Walker probably belong to *Leia*.

1. *Rondaniella abbreviata* Loew. ✓

Berliner Ent. Zeitschrift. XIII. 147. (Leja). 1869.

Male and female. Length 2.5 mm. Pale yellow; apical portion of the antennae, confluent thoracic stripes which are abbreviated anteriorly, metathorax and apex of each hind femur, black; each abdominal segment with subfuscous posterior margin. Hypopygium as figured (Fig. 142). Apex of wing widely fuscous, the cell Rs noticeably more than twice as long as M_1 which is wide open at the base (Fig. 173). "Middle states;" N. C., (W.B.); Wis., (W.M.W.); Selkirk Mts., B. C., (J.C.B.); Ithaca, N. Y.; and Orono, Maine. ~~III~~

2. *Rondaniella sororcula* Loew. ✓

Berliner Ent. Zeitschrift. XIII. 147. (Leja). 1869.

Male. Length 2.5 mm. Pale yellow; flagella of the antennae, posterior half of the thorax and apex of each hind femur, black; posterior margin of each of the first 4 abdominal segments, fuscous, fifth and sixth segments wholly black, apex of the wings fuscous; cell Rs about twice as long as cell M_1 which is narrowly open at the base. "New York."

6. Genus *Neuratelia* Rondani. E

Dipterologiæ Italicæ, Prodromus I. 195. 1856.

Anaclinia Winnertz, Verh. Zool.-bot. Ges. Wien. XIII, 770. 1863.

Ocelli 3 in number, the laterals remote from the eye margin. Wings elongate oval; costa produced more or less beyond the tip of the radial sector; subcosta ends before the middle of the wing; subcostal crossvein (Sc₂) present though often faint; radial sector strongly undulating; anterior branch of media disconnected at the base (Figs. 174-176).

Table of species.

- a. Base of each abdominal segment and larger part underneath yellow; subcostal crossvein absent. *Odontopoda sayi*.
- aa. Abdomen either unicolored or apices of segments yellowish; subcostal crossvein present though sometimes rather faint.
- b. Coxæ largely black; the humeri, tibiæ, inner side and narrow apices of front coxæ and the halteres, yellow, remaining parts blackish; fore metatarsus longer than its tibia. 1. *coxalis*
- bb. Coxæ largely yellowish.
- c. Fore metatarsus over 3-8 longer than tibia.
- d. Thorax largely blackish (Calif.). 2. *silvatica* n. sp.
- dd. Thorax largely yellowish (Vt.). 3. *scitula* n. sp.
- cc. Fore metatarsus not more than 1-20 longer than its tibia.
- d. Abdominal segments with yellow posterior margins.
- e. Fore metatarsus slightly shorter than its tibia; thorax largely yellowish. (Id.). 4. *eminens* n. sp.
- ee. Fore metatarsus slightly longer than its tibia; thorax mainly dark brown. (Mass.). 5. *desidiosa* n. sp.
- dd. Abdomen wholly black. 6. *nemoralis*.

1. *Neuratelia coxalis* Coquillett.Journal N. Y. Ent. Soc. XIII. 68. 1905 (*Anaclinia*).

Length 5 mm. Black, the humeri, femora, tibiæ, inner side and narrow apices of front coxæ, and the halteres, yellow. Body somewhat polished, thinly gray pruinose, the hairs yellowish. First joint of front tarsi longer than the tibiæ. Wings hyaline, venation normal. "B. C.," June and July.

2. *Neuratelia silvatica* n. sp.

Male. Length 6 mm. Blackish brown, somewhat polished; the pleura brown; the palpi, labrum, scape of flagellum, small humeral spot, coxæ, femora, tibiæ, and halteres yellow, tarsi

and trochanters brown; the body hairs yellowish. Fore metatarsus over 1.4 times the tibia in length; antennæ nearly twice as long as the thorax. Wings hyaline, venation as figured (Fig. 174). Hypopygium (Fig. 143). Felton, St. Cruz Mts., Calif., May. (J.C.B.)

3. *Neuratelia scitula* n. sp. ✓

Male. Length 5 mm. Yellowish, somewhat polished; the head and face excepting mouth parts, and abdomen dark brown; the apical half of antennæ, 3 indistinct fine lines on the mesonotum and its hind margin, some spots on the pleura, apex of scutellum, the trochanters, and tarsi paler brown; body hairs yellow. Fore metatarsus over 1.4 times the tibia in length, antennæ nearly twice as long as the thorax. Wings hyaline, veins brown, venation nearly as in *N. silvatica*. Hypopygium (Fig. 144). Brattleboro, Vt., (C.W.J.) July; N. J.

4. *Neuratelia eminens* n. sp.

Female. Length 5 mm. Yellowish, somewhat shining; head except palpi and basal antennal joints, dark brown; thorax dusky yellowish, the 3 broad stripes on mesonotum and the pleura light brown; basal 2-3 of each abdominal segment brown, the margins yellow. Legs including coxæ yellow, the trochanters and tarsi brown; fore metatarsus about 1-20 shorter than its tibia. Body hairs yellow. Wings hyaline, yellow tinged, veins brown, venation as figured (Fig. 175). Halteres yellow. Kendrick, Id., (J.M.A.).

5. *Neuratelia desidiosa* n. sp.

Female. Length 6 mm. Similar to the foregoing in venation and other characters, but the thorax is dark brown, with yellow humeri, margin of scutellum and base of metanotum. The metatarsi of all legs relatively slightly longer proportionally to their tibiæ than in *N. eminens*, the fore metatarsus about 1.04 times as long as its tibia. N. Adams, Mass. (C.W.J.), June.

6. *Neuratelia nemoralis* Meigen.

Syst. Besch. I. 265. 1818 (Mycetophila).

Male. Length 5 mm. Black, somewhat shining; palpi, basal joints of antennæ, humeral spot, coxæ, femora, tibiæ and halteres yellow; the trochanters, front side of hind coxæ, apices

of hind femora, and the tarsi more or less brown. Fore metatarsus and its tibia subequal in length. Wings hyaline with brown veins, venation figured (Fig. 176). Hypopygium resembles somewhat that of *silvatica* in having a short ventral plate but differs decidedly in the form of the claspers which are shown depressed in figure 145. "Alaska;" Selkirk Mts., B. C.; and Muir Woods, Calif., (J.C.B.)

7. Genus *Odontopoda* Aldrich.

Report of State Geologist XXI. 187. 1896.

Proanaclimia. Meunier, Monogr. Mycetophilidæ, etc., 145, 1904.

This genus differs from *Neuratelia* only in lacking the subcostal crossvein. In Williston's Manual of the Diptera (3rd ed.) they are made synonymous. The type in the museum in Indianapolis is broken, only a fragment of the thorax remaining. See table of species of *Neuratelia*.

Odontopoda Sayii Aldrich.

Report of State Geologist XXI. 187. 1896.

Male. Length 6 mm.; of wing 4.7 mm. Front black, antennæ brown, except the first 3 joints, which are yellow; mouth parts yellow; thorax and coxæ yellow, rather pale; the dorsum however more acorn-colored without distinct lines. Abdomen brown, the bases of the segments and a larger part underneath of a lighter color, seventh segment distinct, nearly as long as the sixth, hypopygium as long as the seventh, first segment over half as long as the second. Femora and tibiæ yellow, with a brownish tinge, front tarsi black (the others wanting). Wings of a clear yellow tinge, lighter posteriorly. "Marengo cave, Indiana."

8. Genus *Leptomorphus* Curtis. [

Brit. Ins. 365. 1831.

Ocelli 3, the laterals remote from the eye margin. Abdomen very long, slender, nearly linear, compressed, 7 segmented. Legs long, lateral setæ of the tibiæ very minute, fore metatarsus longer than its tibia. Wings shorter than the abdomen, setulose; costa very slightly produced beyond the tip of the radial sector; subcostal vein complete; ending near the middle of the wing; subcostal crossvein present; media forks far distad

of the base of the radial sector, cubitus forked under or proximal of it; anal vein does not reach wing margin (Fig. 177).

Table of species.

- | | |
|---|--------------------------|
| a. Mesonotum black (N. H.). | 1. <i>hyalinus</i> |
| aa. Mesonotum yellow with black markings. | |
| b. Mesonotum yellow, marked with a median Y and 2 lateral spots; scutellum black. | 2. <i>ypsilon</i> n. sp. |
| bb. Mesonotum with 3 dark stripes, confluent posteriorly. | 3. <i>Walker</i> |
| <i>L. parvulus</i> belongs to <i>Allocotocera</i> . | |

1. *Leptomorphus hyalinus* Coquillett.

Proc. U. S. Nat. Mus. XXIII. 598. 1901.

Female. Length 9 mm. Yellow; an ocellar dot and the mesonotum, except the lateral margin, interrupted above the insertion of wings, black; antennæ, except the 2 basal joints, brown; abdomen with indications of an irregular brown fascia at apex of each segment; body polished; wings hyaline, densely short haired. "White Mts., N. H."

2. *Leptomorphus ypsilon*. n. sp.

Female. Length 8 mm. Head and mouth parts yellow, ocelli close together, surrounded by a blackened area; antennæ about 1.7 as long as the thorax, darker on apical 2-3, the first joint with a protuberance below which is covered with a tuft of fine black setæ. Thorax yellow, shining; mesonotum with a pair of broad black bands which arise behind the humeri, meet at about the middle of the dorsum and thence continued in a single line to the scutellum; on each side of this is a large rounded spot which does not reach the posterior margin; scutellum black. Abdomen yellow, posterior 1-3 of each tergite black. Legs including coxæ yellow, extreme tips of hind femora dark brown, tarsi brownish; fore metatarsus 1.6 times the tibia in length. Wings hyaline, apex from before the tip of R_1 , with pale brown cloud; venation as figured (Fig. 177). Halteres yellow. Ithaca, N. Y. (2 specimens).

3. *Leptomorphus Walkeri* Curtis.

British Entomology, 365. 1831.

Male. Length 10 mm. Ferrugineous. Head, with proboscis, palpi and basal antennal joints yellow, ocellar spot dark.

Thorax with 3 shining blackish stripes which coalesce posteriorly. Abdomen brownish yellow, hind margins of segments 1 to 5 more or less, half of the sixth and the entire seventh, dark brown. Coxæ and legs yellow, the fore metatarsus about 1.5 times the tibia in length. Wings hyaline, apex and hind margin dusky, spot covering base of Rs; base of Rs more distad in this species than in *L. ypsilon*. "Europe and New Jersey."

9. Genus *Allocotocera* Mik.

E

Wien. Ent. Zeitg. V. 102. 1886.

Eurycera. Dziedzicki, Pam. Fizyogr. V. 6. 1885.

Ocelli 3, laterals remote from the eye margin. Legs of moderate length. Wings oval, the costa extends beyond the tip of the radial sector; subcosta ends in the costa, subcostal crossvein present; petiole of media long, cubitus forks proximad of the distal end of the R-M crossvein; anal vein stout but ends before wing margin (Fig. 178). The wing venation and the short legs distinguish this genus from *Leptomorphus*.

Allocotocera parvula Coquillett.

Proc. U. S. Nat. Museum. XXIII. 597. 1901 (*Leptomorphus*). *parvula*, Johannsen, Gen. Ins. Fasc. 93., 75. 1909 (*Boletina*). *flavescens*, Johannsen, Gen. Ins. Fasc. 93., 72. 1909.

Female. Length 3.5 mm. Head, including mouth parts, and basal antennal joints (apical joints missing), wholly yellow, excepting conspicuous dark brown spot back of and contiguous to each lateral ocellus and a smaller surrounding the middle one. Thorax, including sternum, pleura, scutellum, and metanotum wholly yellow, dorsum with faint indications of 2 brown stripes. Abdomen yellow, margin of each of segments 2 to 5 and the whole of the apical segments dark brown. Thorax and abdomen hairy rather than setose. Legs yellow, apices of coxæ and of femora slightly brownish, tarsi pale fuscous; fore and middle tibiæ each with one row of small setæ on flexor surface and 3 or 4 on extensor surface; hind tibiæ each with 3 rows on extensor surface; the longest setæ on hind tibiæ not as long as diameter of the tibia; fore metatarsus a little over 1-2 as long as its tibia; spurs pale brown. Wings with a yellowish tinge, strongly setulose; veins yellow; a brown spot covers apex of R₁ and R_s extending to the tip of the costa.

Venation as figured (Fig. 178). Halteres yellow. Wisconsin. "N. J." I have examined the type hence the synonymy.

✓ 10. Genus *Boletina* Stæger. E

Kröger: Naturhist. Tidsskr. III. 233. 1840.

E ← *Palæoanacclinia* Meunier, Monogr. Mycetophilidæ, etc. 143. 1904.

Ocelli 3, placed in a flattened triangle upon the broad front, the middle one small, laterals remote from the eye margin. Legs slender, fore metatarsus shorter than its tibia, one claw of each foot in the male frequently modified, scoop-like, and fluted. Wings elongate, costa somewhat produced beyond the tip of the radial sector; subcosta ends before the middle of the wing in the costa, subcostal crossvein (Sc_2) present or absent; media forks under or somewhat distad of the radial sector; cubitus forks under or proximad of the fork of the media; anal vein incomplete (Figs. 179-192).

The genus *Palæoanacclinia* cannot be considered distinct, for, with the exception of the absence of the subcostal crossvein, there are no structural differences. In one species (*B. obscura*) this vein may be either present or absent; in some others it is quite faint and inconspicuous.

Table of species.

- a. Subcostal crossvein (Sc_2) present.
 - b. Halteres black; Sc ends in C opposite base of R_s ; Sc_2 slightly proximad of proximal end of crossvein. 1. *abdominalis*.
 - bb. Halteres mainly yellowish.
 - c. Yellow species; hind margins of abdominal segments 2 to 5 and the whole of 6 and 7 black; wings hyaline, broad apices gray; media with long petiole. 2. *Allocotocera parvula*.
 - cc. Thorax usually dark, or with dark vittæ; if not then petiole of media but little longer than the crossvein.
 - d. The fork of the cubitus proximad of the proximal end of the R-M crossvein (Figs. 179-181).
 - e. Subcostal vein ends in the costa distad of the base of R_s ; coxæ black. 3. *obscura* n. sp.
 - ee. Subcostal vein ends in the costa opposite or proximad of the base of R_s ; coxæ yellow.
 - f. Fore metatarsus less than 2-3 as long as tibia; pleura yellow. 4. *cincta* n. sp.
 - ff. Fore metatarsus at least 2-3 as long as tibia; pleura black. 5. *melancholica* n. sp.

dd. Fork of the cubitus opposite or distad of proximal end of crossvein.

e. Thorax partly yellow, usually with black thoracic stripes; spurs brown; fore tarsi nearly or quite twice, fore metatarsus over .8 as long as the tibia; palpi usually yellow.

f. Costa but slightly produced beyond Rs ; Sc_2 near middle of Sc_1 .

g. Cubitus forks proximad of the distal end of the crossvein; petiole of media less than 4 times as long as basal section of Rs . 6 *imitator* n. sp.

gg. Cubitus forks nearly under the fork of the media; petiole of the media over 6 times as long as basal section of Rs . 7. *gracilis* n. sp.

ff. Costa produced at least 1-4 distance from Rs to M .

g. Sc_2 near middle of Sc_1 ; antennæ nearly as long as the body in the male. 8. *longicornis* n. sp.

gg. Sc_2 distad of the middle of Sc_1 .

h. Subcosta ends in the costa opposite base of Rs ; abdomen of female with yellow fasciæ.

9. *notescens* n. sp.

hh. Subcosta ends distad of base of Rs ; abdomen of female uniformly fuscous.

9a. *notescens*, varieties.

ee. Thorax black; and usually with yellow tibial spurs, shorter tarsi and dusky palpi.

f. Subcosta ends over the base of Rs ; petiole of M is shorter than the crossvein; part of third joint of antenna yellow; posterior coxæ dark; abdomen of female fasciate; Arctic species. 10. *groenlandica*.

ff. With other combination of characters.

g. Sc_1 ends in C slightly proximad of the base of Rs ; petiole of M shorter than the crossvein; Sc_2 before the middle of Sc_1 ; abdominal sclerites margined with yellow (female); coxæ yellow; Alaska.

11. *beringensis*.

gg. With other combination of characters.

h. Costa produced at least 1-5 of distance from Rs to M_1 .

i. Sc_1 ends in C distad of the base of Rs .

i. Coxæ black.

12. *Hopkinsii*.

ji. Coxæ yellow; Sc_2 distad of middle of Sc_1 .

13. *sobria* n. sp.

ii. Sc_1 ends in C opposite or proximad of base of Rs ; Sc_2 distad of middle of Sc_1 .

j. Coxæ wholly grayish; claws in both sexes with basal tooth. Greenland.

14. *arctica*.

- jj. Coxæ in large part yellow; one claw of each foot of male modified.
- k. Abdomen with yellow fasciæ; palpi yellow; tarsi of female tumid.
- 15. *tricincta*. ✓
- kk. Abdomen black; palpi dark; fore tarsi about 1.75 times as long as the tibia.
- 16. *sciarina*.
- hh. Costa but slightly produced.
- i. Fore tarsus over twice, the metatarsus over .8 as long as the tibia.
- j. Spurs pale. 17. *delicata* n. sp.
- jj. Spurs dark. 7. *gracilis* n. sp.
- ii. Fore tarsus less than 1.7, the metatarsus less than .75 as long as the tibia (female).
- 18. *obesula* n. sp.
- aa. Subcostal crossvein (Sc_2) absent.
- b. Subcostal vein ends distad of the base of Rs; costa noticeably produced; cubitus forks under or proximad of proximal end of crossvein. (Compare 12. B. Hopkinsii). 3. *obscura* n. sp.
- bb. Subcostal vein ends at or proximad of the base of Rs; costa but slightly produced.
- c. Fore tarsi not over twice, hind tarsi not as long as the tibia.
- d. Subcosta ends nearly opposite the base of Rs.
- e. Abdomen unicolored. 19. *inops*.
- ee. Abdominal segments with yellow posterior margins (female). 19a. *inops* var. a.
- dd. Subcosta ends proximad of the middle of the R-M crossvein. 20. *sedula* n. sp.
- cc. Fore tarsi over twice, hind tarsi longer than the corresponding tibiæ. 21. *nacta* n. sp.

I. *Boletina abdominalis* Adams.

Kansas Univ. Science Bul. II. 24. 1903.

Male. Length 3.5 mm. Black, subshining; head and members black, except first antennal joint, which is tinged with yellow, middle ocellus very small; mesonotum black, subshining, covered with yellow pile, which are inclined to arrange themselves into rows, scutellum black, pile yellow, pleura black, without pile, metanotum black, halteres black; abdomen wholly black, subopaque, hypopygium with a yellowish tinge, pile yellow; legs yellowish, trochanters and tarsi, except base, largely fuscous; wings grayish hyaline, veins fuscous, subcosta joins the costa opposite base of Rs, subcostal crossvein slightly before the proximal end of the crossvein; furcation of the cubitus

is just distad of the same, and the furcation of the media is distad of the base of Rs. "Mo." April.

2. *Boletina parvula* Coquillett.

Proc. U. S. Nat. Museum. XXIII. 597. 1901 (Leptomorphus). *parvula*, Johannsen; Gen. Ins. Fasc. 93, 75. 1909. (*Bolet'na*).

An examination of the type showed that this species belongs to *Allocotocera* and not to *Boletina* as I formerly believed. *A. flavescens* is a synonym.

3. *Boletina obscura* n. sp.

Male. Length 3.5 mm. Black, including the head and all its parts, thorax, abdomen and coxæ; legs paler, femora light yellow, tibiæ slightly darker, spurs white, tarsi brown; wings hyaline, cinereous tinged, veins pale brown, venation as figured (Fig. 179); halteres yellow. Antennæ long, intermediate joints over twice as long as broad. Thorax dull, hairs including those of scutellum bright yellow on the mesonotum in 3 rows; abdomen subshining, its hairs as well as those of the coxæ, pale. Hypopygium dusky (Fig. 146). One claw on each of fore and middle foot, modified, scoop-shape, fluted and with serrate margin. Hampton, N. H., April and May (S. A. Shaw); Ithaca, N. Y.; Forest Hill, N. J., (Weidt), April.

Female. Differs in having the fork of the cubitus slightly more retracted, in having relatively slightly shorter fore metatarsus; and in having unmodified claws. Brookline, Mass. (C.W.J.)

In this species the subcostal crossvein (Sc_2) is frequently absent.

4. *Boletina cincta* n. sp.

Male. Length 4 mm. Head black, face, palpi, 3 or 4 basal joints of antennæ yellow; intermediate antennal joints about twice as long as wide. Thorax yellow, mesonotum with 3 confluent black stripes; scutellum and base of metanotum black; hairs yellow; scutellar setæ black. Abdomen yellow, the dorsum of 1, the whole of 5, 6, 7 and hypopygium (Fig. 147) and large basal triangular saddles on 2, 3 and 4, black. Coxæ and legs yellow, tarsi brownish, spurs yellow, trochanters black; each tarsal claw toothed at base. Wings hyaline, slightly smoky

toward the end of the costa; petiole of the media over twice as long as the crossvein (Fig. 180). Halteres yellow. Mt. Ascutney, Vt., July. (C.W.J.)

Female. With slightly shorter fore metatarsi; abdominal segments 2, 3, and 4 black, with posterior 1-3 of each segment yellow; ventral sclerite of ovipositor twice as long as the distal joint. Old Forge, N. Y. July. (J.G.N.)

5. *Boletina melancholica* n. sp.

Male. Length 4 mm. Head black, palpi and antennæ brown, intermediate joints of the latter about 3 times as long as broad, base of joint 3, yellowish. Thorax and abdomen wholly black, hairs yellow. Hypopygium black, resembles that of *obscura*, but forceps (Fig. 149) and median ventral lobe (Fig. 148) differ. Coxæ and legs yellow, tarsi brown, trochanters black, tibial spurs pale yellow; all claws scoop-like, fluted and with serrate margin. Wings hyaline, veins yellowish (Fig. 181). Halteres yellow, Dubois, Wyo., Sept. (W.M.W.)

Female. Intermediate antennal joints about twice as long as wide; venter and abdominal tergites with pale brown margins; ovipositor yellowish. Jackson Lake, Wyo., Sept. (W.M.W.)

6. *Boletina imitator* n. sp.

Male. Length 6 mm. Head brown, face, palpi and 4 basal joints of antenna yellow, intermediate antennal joints about 3 times as long as broad. Thorax yellow, the 3 stripes on the mesonotum brown, the scutellum and the metanotum largely brown; hairs yellow. Abdomen dark brown, venter paler; hypopygium as shown (Fig. 150). Coxæ and legs yellow, the trochanters, tarsi and tibial spurs, brown; tarsal claws all alike, toothed at base. Wings hyaline, veins dusky yellow (Fig. 182). Halteres yellow. Longmire's Springs, Mt. Rainier, Wash. August. (J.M.A.)

7. *Boletina gracilis* n. sp.

Male. Length 6.5 mm. Head black, pruinose, face and antennæ brown, palpi yellow, basal joints brown; intermediate antennal joints about 3 times as long as broad. Thorax dusky yellow, mesonotum with 3 broad dull black stripes, scutellum, metanotum and sternum and sometimes the pleura largely dark

brown; hairs yellow. Abdomen brown, base of hypopygium and claspers (Fig. 151) dusky yellow. The hypopygium is figured in Genera Insectorum, Fascicle 93, Plate 7, Fig. 9. Coxæ and flexor surface of femora and tibia yellow, other parts of legs including spurs brownish, trochanters blackish; claws all similar, slender but slightly curved, basal tooth small. Wings hyaline, grayish tinged, veins dusky yellow. (Fig. 183). Halteres yellow, apex of knob brownish. Cal., Aug., (J.C.B.); Two-gwo-tee-e Pass, Wyo., Sept. (W.M.W.)

Female. Similar, but the yellow of the thorax is confined to the humeri. Ovipositor paler brown, the lobes yellow. Wyo.

8. *Boletina longicornis* n. sp.

Male. Length 4.5 mm. Head and face dark brown; palpi, the scape and the base of the first flagellar joint, yellow, remainder of flagellum brown; intermediate segments over 5 times as long as wide. Thorax dusky yellow, the 3 dorsal stripes dark brown; the scutellum, the metanotum and the lower half of the pleura, brownish; hairs yellowish. Abdomen dark brown, the posterior margin of the intermediate sclerites yellow; hypopygium as figured (Fig. 152). Coxæ and femora yellow, the apical half of the former and the tibia dusky yellow, the tarsi and the tibial spurs brownish; tarsal claws all similar, each with basal teeth. Wings hyaline, grayish tinged, veins dusky yellow (Fig. 184). Halteres yellow. Moscow, Id., April. (J.M.A.)

9. *Boletina notescens* n. sp. V

Male. Length 5 mm. Head dark brown, face, mouth parts, and basal 1-3 of antennæ yellow, apical part of antenna brown; intermediate joints scarcely twice as long as broad. Thorax yellow, the 3 dorsal stripes reddish. Abdomen pale brown, posterior segments darker, venter and posterior margins of the intermediate dorsal sclerites yellowish; hypopygium pale brown resembling that of *B. imitator* but shorter in proportion to the width, and with shorter and stouter forceps (Fig. 153). Coxæ and legs yellow, trochanters blackish, tarsi and tibial spurs brown; claws all similar, each with one strong and several minor basal teeth. Wings grayish, hyaline; veins dusky yellow (Fig. 185). Halteres yellow. Ithaca, N. Y. June.

In another specimen from Massachusetts the face, basal portion of each abdominal tergite and thoracic stripes are dark brown but otherwise does not differ. It is possible that the Ithaca specimen is teneral.

Female. Similar to the Massachusetts specimen in coloring.

Var. a. Female. Similar to the foregoing but abdomen is wholly black. Mt. Greylock, Mass., June. (C.W.J.) Ovipositor is shown in Fig. 161.

Var. b. Female. Similar to Var. a. but the subcostal vein is produced a little distad of the base of Rs. Friday Harbor, Wash. (J.M.A.)

10. *Boletina granlandica* Stæger. ✓

Naturh. Tidsskr. I. 356. 1845.

Male and female. Length 5 mm. Head and palpi blackish; antennæ of the male over twice as long as the thorax, immediate base of joint 3 reddish, remaining joints fuscous. Thorax and abdomen blackish, abdomen of the female with posterior margins of segments 2-6 yellow. Halteres pale. Legs yellow, posterior coxæ, and all trochanters and tarsi blackish; tibiæ testaceous, spurs yellow; posterior femora blackish at apex. "Greenland."

11. *Boletina beringensis* Coquillett.

Diptera of Commander Isl. 342. 1898.

Female. Length 4.5 mm. Head black, opaque gray pruinose, antennæ blackish brown, the second joint yellow, proboscis blackish brown; palpi yellow; thorax, scutellum and abdomen black, the hairs yellow, mesonotum marked with 3 black vittæ, posterior margins of the abdominal segments 2 to 6 and the genitalia yellow. Coxæ, femora and tibiæ yellow, the trochanters black; tarsi except the base, brownish black. Wings hyaline, the costal cell yellowish, veins yellow, the basal third of M_2 colorless; tip of Sc_1 slightly before base of Rs, Sc_2 a short distance before the middle of Sc_3 ; M and Cu forking slightly before the base of Rs, the forking of M more proximal than that of Cu; anal vein extending a short distance beyond the forking of Cu. Halteres yellow. "Bering Isl." July-Aug.

12. *Boletina Hopkinsii* Coquillett.

Canadian Entomologist. XXVII. 200. 1895. (Mycetophila).

Male. Length 4 mm. Black, the thorax and abdomen subshining, not pollinose; halteres, femora, tibiae and base of metatarsi dusky yellow. Antennae twice as long as head and thorax united, densely short, white pubescent. Thorax and scutellum sparse, coarse, golden yellow pilose, abdomen fine yellowish white pilose. Front tibiae destitute of stout bristles except at the tip, the middle and hind ones bearing numerous black bristles. Wings gray, unmarked; Sc₁ ending in the costa slightly beyond the base of Rs; media forks the length of the crossvein beyond the latter; cubitus forks opposite the proximal end of the crossvein; anal vein scarcely reaching beyond the middle of Cu₂; costal vein reaches the first third of distance between tips of Rs and M₁. "Morgantown, W. Va."

A single male specimen from Hampton, N. H. (S. A. Shaw) which may be this species or else an aberrant specimen of *B. obscura* has Sc₂ very indistinct, proximad of the middle of Sc₁, the petiole of the media but little longer than the crossvein and the fork of the cubitus slightly distad of the proximal end of the crossvein.

13. *Boletina sobria* n. sp.

Female. Head, thorax and abdomen brownish black, slightly pruinose; lamellae of ovipositor, palpi and flagellum of antennae brown, the intermediate joints of the latter not twice as long as wide; body hairs yellowish. Coxae and legs yellow; trochanters blackish, tarsi brown; spurs pale yellow; claws each with 4 or 5 basal teeth, those of hind claws more minute. Wings grayish hyaline, veins dusky yellow (Fig. 186). Halteres yellow. Longmire's Springs, Mt. Rainier, Wash. August. (J.M.A.)

14. *Boletina arctica* Holmgren.

Oefv. Vetensk. Akad. Forh. 105. 1872.

Male and female. Length 4-5 mm. Blackish, subopaque; thorax cinereous with 3 black stripes, the middle one geminate; furrow below the humeri pale; antennae wholly blackish; palpi fuscous, yellowish apically; abdomen blackish. Wings hyaline, anterior veins dusky; fork of the cubitus more retracted than

that of the media. Halteres and legs yellowish, coxæ cinereous, tarsi fuscous. "Greenland."

Rübsaamen (in Bibliotheca Zool. XX. 104, '98) describing a specimen which he identifies with the above adds that the flagellar joints are distinctly longer than broad, the tarsal claws each have a basal tooth, and gives a figure of the wing in which Sc_1 ends proximad of the base of R_1 ; Sc_2 is distad of the middle of Sc_1 ; petiole of M slightly longer than the crossvein; costa produced far beyond tip of Rs , and cubitus forks under the petiole of the media. Hypopygium as figured (Fig. 154).

15. *Boletina tricincta* Loew. ✓

Berlin. Ent. Zeitschr. XIII. 143. 1869.

Male and female. Length 3.2 mm., wing 3.2 mm. Head black, antennæ fuscous black, scape and base of the flagellum testaceous or subfuscous; palpi yellow. Thorax and abdomen shining black; abdominal sclerites 2-4 with yellow posterior fascia; venter except last 3 segments, yellow. Hairs yellow. Hypopygium small, similar to that of *B. dispecta* Dzied. but terminal appendages with 10 apical rays, and forceps differ (Fig. 157); lamellæ of ovipositor pale. Coxæ and legs yellowish, trochanters with fuscous spot, tibial spurs dusky yellow or pale; tarsi except the base fuscous; fore tarsi of the female tumid. Wings grayish hyaline, heavier veins fuscous. Halteres yellow. "Wis., Md."

The intermediate antennal joints not twice as long as broad; in the male one claw of the fore and middle feet, modified scoop-like, fluted and with serrate margin, the other claws sharp but with a serrate and scoop-like basal tooth; in the female each claw has a serrate basal tooth. Venation as figured (Fig. 187). Selkirk Mts., B. C. (J.C.B.); Me. and Mass. (C.W.J.); R. I. (J.B.); Wis. (W.M.W.); Ithaca, N. Y.; Brookside, N. J., (Weidt), July-Sept. 71

16. *Boletina sciarina* Stæger.

Kröger. Ent. Tidskr. 236. 1840.

Male and female. Length 3-4 mm. Wholly blackish brown; coxæ, femora, spurs and halteres yellow; tibiæ darker, tarsi brown; hind coxæ and sometimes the others also more or less brown. Antennæ of the male from 1.5-2 times as long as head

and thorax taken together; the fore tarsi about 1.75 times as long as the tibia, the fore tibia about 1.5 times as long as the metatarsi. Wings grayish hyaline with brown veins; costa produced far beyond the tip of R_s ; petiole of the media about twice as long as the crossvein; Sc_2 distad of the middle of Sc_1 ; Sc_1 ends opposite the base of R_s ; cubitus forks under the crossvein or sometimes opposite its proximal end. "Greenland and N. H."

According to Rübisaamen one claw of each foot is modified scoop-shape, fluted and with serrate margin. I have female specimens from Maine and New York which appear to belong here. According to a figure given by Dziedzicki the hypopygium resembles that of *B. obscura* but the forceps are differently formed (Fig. 156).

Some female specimens from California and Wyoming resemble this species but differ in having longer fore tarsi.

17. *Boletina delicata* n. sp.

Male. Length 3 mm. Head, including mouth parts, basal antennal joint black (flagellum broken). Thorax and abdomen black, subopaque, with yellow hairs. Hypopygium black, resembling that of *obscura* but with different forceps (Figs. 159, 160) and terminal appendages (Fig. 158). Coxæ, femora, tibiæ and tibial spurs yellow, tarsi brownish; claws broad, digitate, digits contiguous, outer digit shorter and free. Wings grayish hyaline, veins dusky yellow (Fig. 188). Halteres yellow. Jackson Lake, Wyo., Sept., (W.M.W.)

18. *Boletina obesula* n. sp.

Female. Length 5.5 mm. Head, including mouth parts, and antennæ, black; intermediate antennal joints about twice as long as broad. Thorax black; abdomen dark brown with posterior margins of both dorsal and ventral sclerites of segments 3 and 4, and lamellæ of ovipositor, yellow. Immediate base of fore, basal 2-3 of middle and hind coxæ, and trochanters dark brown; femora and tibiæ yellow, tarsi brown; tarsal claws all similar, with basal teeth. Wings grayish hyaline, anterior veins strong, dark. (Fig. 189). Head of Tsirku River, Alaska, July-Aug., (O. M. Leland).

19. *Boletina inops* Coquillett.

Proc. Washington Acad. Sc. II. 391. 1900.

Male and female. Length 4.5 mm. Black, the second joint of antennæ and base of the third, the palpi, halteres, coxæ, femora and male hypopygium yellow, tibiæ brownish yellow; hairs of body yellow; thorax subopaque, thickly gray pruinose; abdomen subopaque; bristles of inner side of middle tibiæ slightly shorter than the diameter of each tibia; wings hyaline, tip of the subcosta slightly before the base of the radial sector, subcostal crossvein wanting; media forking slightly beyond, the cubitus about opposite to base of radial sector; third joint of antennæ twice as long as wide; hypopygium of male at least 1-2 longer than the longest segment of the abdomen preceding it. "Yakutat and Orca, Alaska."

Var. a. A single female specimen from Moores Lake, Idaho, differs in having brownish hind coxæ and abdominal segments except the first with yellow posterior margins. Wing venation as figured (Fig. 190). The leg measurements given on page 324 are of this specimen.

20. *Boletina sedula* n. sp.

Male and female. Length 3.5 mm. Head black, gray pollinose, antennæ dark, 3 basal joints yellow, intermediate joints over twice as long as wide, palpi yellowish. Thorax and abdomen black, gray pollinose, the abdomen subshining, hairs yellow. Hypopygium black, resembling that of *B. gracilis*. Coxæ and legs yellow, tarsi infuscated, spurs black; claws unmodified, each with strong tooth near the base. Wings 4 mm. long 3.6 times as long as the fore tibia; hyaline, veins yellowish brown; venation as figured (Fig. 191). Halteres yellow. Longmire's Springs, Mt. Rainier, Wash., August (J.M.A.). In the female the fork of the cubitus is a little proximad of fork of the media.

21. *Boletina nacta* n. sp.

Male and female. Length 3.5 mm; wings 4 mm. Head and its parts black, intermediate antennal joints about 3 times as long as wide. Thorax and abdomen black subopaque, hairs yellow; hypopygium black, similar to that of *B. gracilis* but forceps differ. (Fig. 155). Coxæ and legs yellow, the bases of hind coxæ and the trochanters black; tarsi infuscated; spurs

yellow; claws unmodified, each toothed near the base. Wings 3.75 times as long as the fore tibia; hyaline, veins yellowish brown; venation as figured (Fig. 192). Halteres yellow. Two-gwatee-e Pass, Wyo., Sept. (W.M.W.). In one specimen from Black Rock Creek, Wyo., the subcosta ends opposite the base of Rs.

11. Genus *Leia* Meigen. ✓ E

System. Besch. I. 258. 1818.

Lejomya Rondani, Prodr. 1, 195. 1856.

Glaphyroptera Winn. Verh. Zool.-bot. Ges. XIII. 781. 1863.

Neoglyphyroptera. O. S. Catl. Dipt. N. A. 10. 1878.

Eyes oval, ocelli 3, the laterals large, rather close though not contiguous to the eye margin, the middle one rarely absent. Legs moderately strong, setæ of fore legs rather delicate; those on the extensor surface of middle and hind legs stout. Wings elongate oval; subcosta ends in the costa at one-fourth or one-third the wing length from the base and is connected with R₁ by Sc₂ near its apex; the basal cell R is very long, extending beyond the middle of the wing; the media usually forks noticeably before the base of the radial sector; the cubitus forks proximad of the proximal end of the R-M crossvein, its anterior branch is sometimes slightly disconnected at the base; anal vein stout, incomplete. The larvæ live in mushrooms.

Table of species.

- a. Thorax largely black, not vittate, humeri and anterior margin may be yellow, wing fasciate.
- b. Fore part of thorax yellow, head black between the eyes, wings with preapical fascia and a dash behind Cu₂ but no discal mark. 1. *varia*.
- bb. Thorax not yellow anteriorly except sometimes the humeri.
- c. Scutellum, vertex, and occiput yellow; Mexican. 2. *punctata*.
- cc. Scutellum black.
- d. Halteres wholly yellow.
- e. Costa produced about 1-10 of distance from Rs to M₁. 3. *melaena*.
- ee. Costa not produced.
- f. Preapical wing band lies beyond the middle of cell Rs and nearly fills apex of the wing. 4. *nigra* n. sp.
- ff. Preapical wing band nearly reaches the base of cell M₁. 4a. *nigra* var. a.

dd. Knob of halteres blackish.

e. Brown spot on wing at origin of the crossvein; proximal abdominal segments yellow anteriorly; pleura yellow anteriorly. St. Vincent Isl. 5. *nitens*.

ee. No brown spot at origin of the crossvein; proximal abdominal segments wholly black; Eastern U. S.

6. *ventralis*. ✓

aa. Thorax largely yellow, or if not then at least distinctly yellow between the dorsal vittæ.

b. Mesonotum shining black except humeri and two slender converging yellow lines on each side of a wedge-shaped black median vitta.

c. Venter yellow, dorsum mainly black. 7. *cuneola*. ✓

cc. Abdomen almost wholly black; female; Mexico. 8. *amabilis*.

bb. Mesonotum not so marked.

c. Thorax with 3 distinct dark brown, longitudinal vittæ, middle one sometimes divided; wing with fasciæ or spots.

d. A brown cloud near apex of wing distad of the preapical fascia. 9. *Winthemii*. ✓

dd. No cloud on wing distad of the preapical fascia.

e. Hind coxæ and femora yellow. 10. *striata*.

ee. Hind coxæ and femora largely black. 11. *lineola*.

cc. Mesonotum spotless, or with only 3 reddish stripes, or with black spots on each side at base of wing.

d. Without conspicuous black spot on each side at base of wing.

e. Wing unmarked.

f. Abdomen yellow. 12. *unicolor*.

ff. Abdomen fasciate.

g. Thorax with 3 reddish brown vittæ; fore metatarsus shorter than the tibia. 13. *plebeja* n. sp. ✓

gg. Thorax yellow; fore metatarsus as long as the tibia.

14. *hyalina*.

ee. Wing fasciate.

f. Wing with brown spot at base of crossvein.

g. Hairs of thorax yellow, setæ darker; species from the United States.

h. Crossvein shorter or not longer than the apical part of R₁. 15. *oblectabilis*. ✓

hh. Crossvein longer than apical part of R₁.

15a. var. of *oblectabilis*.

gg. Hairs and thoracic setæ black; species from West Indies. 16. *concinna*.

ff. Wing without brown spot at base of crossvein.

17. *dryas* n. sp.

dd. Mesonotum yellow with shining black spot, large or small, on each side in front of the base of the wing.

e. Wing unmarked, hyaline.

f. Pleura and metanotum black. 8. *amabilis*.

- ff. Anterior part of pleura and center of metanotum yellow. 18. *cincta*.
- ce. Wing with preapical fascia.
- f. Middle ocellus wanting; no cloud at proximal end of the crossvein. 19. *decora*.
- ff. Middle ocellus present and frequently surrounded by black.
- g. Wing with a distinct brown cloud at the proximal end of the crossvein; lateral thoracic spots large. 20. *opima*. ✓
- gg. Wing without distinct cloud at proximal end of the crossvein.
- h. Thoracic spot at base of wing, small, punctiform, not extending down over the metapleural lobes; abdominal fasciæ usually produced forward on the middle line. 21. *sublunata*. ✓
- hh. Thoracic spot at base of wing large, produced over the metapleural lobes; abdominal fasciæ usually emarginate, sometimes divided, rarely produced. 22. *bivittata*. ✓

Leia miocenica Cockerell (Bul. Am. Mus. N. Hist. 76. 1911) is a fossil from the Miocene shales of Florissant, Colorado.

1. *Leia varia* Walker.

List of Diptera, Brit. Museum. I. 93. 1848.

Length 3.5 mm; of wings 8 mm. Body yellow; head black between the eyes, which, and the feelers are also black; the latter are yellow at the base; chest except the fore part, black; segments of the abdomen bordered with black, which color extends partially along the sides of the segments; legs yellow; hips and thighs much paler than the shanks and feet; wings colorless, each with a broad, brown irregular and interrupted band near its tip; veins brown.

To the above may be added that the upper half of the pleura, the scutellum, metanotum and last abdominal segment are brownish to black, the halteres are yellow and wings as figured (Fig. 193). "Canada;" Wis., and Wyo., (W.M.W.).

2. *Leia punctata* Bellardi.

Saggio di Ditterol. Messicana, Append. 202. 1861.

Male. Length 4 mm. Black, shining. Lateral ocelli large, black; median small, black; vertex and occiput yellowish, shining; antennæ black; the first two joints and the under side of

the third and fourth, yellow, the tip white; face and palpi yellow. Thorax wholly blackish, bare, shining; pleura black, each with yellow median spot; scutellum yellow; metathorax shining black. Abdomen black; genitalia yellow; venter yellow, blackish toward the base. Coxæ yellow, bare, at apex bipunctate; femora yellow each with black spot at base, blackish above; tibia yellow; tarsi fuscous; first joint yellow toward the base. Wing iridescent; with preapical spot. The figure shows the wing spot extending back into the base of the fork of the media.

"Tuxpango, near Orizaba, Mexico."

3. *Lcia melæna* Loew.

Berlin. Entomol. Zeitschr. XIII. 144. 1869.

Male. Length 3 mm; wing 3.8 mm. Black, shining, with yellowish pile. Head black, face yellow; palpi pale yellow, antennæ black, 3 basal joints yellow. Thorax black, humeral triangle whitish. Abdomen black, pile yellow, hypopygium black (Fig. 162), black pilose. Coxæ and legs pale yellow, tip of each posterior femur blackish, apical joints of hind tarsi infuscated, hind tarsi a little shorter than the tibiæ. Wing proportionately long, hyaline; with wide preapical fascia which is more dilute toward posterior margin; a brown cloud behind Cu₂ (Fig. 194). Costa slightly produced beyond the tip of Rs. Halteres yellow.

"New York;" R. I., (J.B.).

4. *Lcia nigra* n. sp.

Male. Length 4 mm. Head shining black, face pruinose, antennæ black, scape and palpi yellow. Thorax shining black, faintly pruinose in oblique view, setæ black, fine hairs yellowish. Abdomen shining black, hairs yellowish; intermediate ventral sclerites narrowly margined with yellowish, hypopygium black (Fig. 163). Coxæ, femora and tibial spurs yellow, tibiæ and metatarsi dusky yellow, remaining tarsal joints brown; setæ of tibiæ and tarsi and of apex of coxæ black. Wing white hyaline, preapical fascia does not cover the basal half of cells R₁ and M₁ (Fig. 195). Halteres yellow. Pullman, Wash., (J.M.A.).

Female. Differs in having black pile on thorax and abdomen; yellow fasciæ of ventral abdominal sclerites less extended, and tibiæ more brownish. Midvale, Montana (C. E. Brown).

Var. a. Female. Length 3.5 mm. Hairs of thorax and abdomen yellowish. Wing fascia is produced proximad in cell M_1 nearly reaching the fork. Little Wind River, Wyo., (W.M.W.), Sept. Represented by but a single specimen. It may be a distinct species.

5. *Leia nitens* Williston.

Trans. Ent. Soc. London. 259. 1896.

Male and female. Length 4 mm. Mesonotum shining black; wings infuscated. Front black or blackish, yellowish on the lower part; face yellow; antennæ blackish, the basal joints yellowish, about as long as the thorax. Mesonotum, scutellum, and metanotum shining black, the bristles of the same color; pleura yellow in front; reddish-brown behind. Abdomen slender; shining black or deep brown, the proximal segments in front yellow or yellowish; venter yellow. Tuberculum of halteres black. Coxæ yellow; femora nearly the same color; hind femora at the tip blackish; tibiæ brownish yellow; tarsi brown; front tibiæ shorter than the metatarsi; middle tarsi nearly a half longer than their tibiæ; hind tibiæ and tarsi of nearly equal length. Wings infuscated, the apex tinged with blackish; a brown spot at the origin of the crossvein. Middle and hind tibiæ with stout spurs. In some specimens the face is brown, the front wholly black, the posterior part of the pleura and greater part of abdomen, black. "St. Vincent Isl."

6. *Leia ventralis* Say.

Long's Exped. to St. Peter's River. App. 364.

Male and female. Length 3.5 mm. Head black; antennæ brown, 3 basal joints and the palpi yellow. Thorax and abdomen shining black, venter with segments 3 and 4 largely yellow; hairs pale. Coxæ, femora, tibiæ, and metatarsi yellow; remainder of tarsi brown; tip of each hind femur blackish; tibial spurs yellow. Wings whitish hyaline, the broad pre-apical band nearly reaches the base of the fork of the media. (Fig. 196). Halteres yellow with black knob. "North West

Terr.;" Mt. Ascutney, Vt., (C.W.J.); Traveler's Mt., Me., (J. A. Cushman), July. Ill.

7. *Leia cuneola* Adams.

Kansas Univ. Science Bul. II. 25. 1903 (*Neoglaphyoptera*).

Female. Length 4 mm. Yellow, shining; vertex with a transverse black line, occiput with a reddish cast and sparse yellow pile, antennæ, except base, dark brown; mesonotum with 3 shining black stripes, the 2 lateral ones nearly as broad as long, the middle one wedge-shaped, scarcely reaching the middle of the dorsum, pile yellow, scutellum yellow, with 2 long yellow bristles; pleura black, yellow above anterior coxæ, metanotum black, halteres yellow; abdomen shining black, except narrow lateral margins, apex and venter, which are yellowish, pile very short and yellow; legs yellow, a small spot on trochanter, extreme tip of posterior femora, of tibiæ, and tarsi in large part, fuscous; wings hyaline, a brownish fascia traversing the wing, starting about midway between tip of first vein and apex of wing. (Fig. 197). "Colo., August." Pollock, Ida. (J.M.A.) July.

8. *Leia amabilis* Williston.

Biolog. Centr. Amer. I. Suppl. 219. 1900 (*Neoglaphyoptera*).

Male. Length 4 mm. Head yellow. Antennæ longer than the head and thorax together; black, the scape and first 3 or 4 joints of the flagellum yellow. Thorax yellow, mesonotum with a large, deep, shining black spot on each side, leaving a narrow median stripe and front part yellow. Metanotum and mesopleura shining black; immediately subjacent to the root of the wings the color is blackish. Abdomen brownish-black, with the anterior margin of each segment and the venter yellow. Legs yellow; the tip of the hind tibiæ and the tarsi brownish; front tarsi nearly 2.5 times the length of the tibiæ; the tibiæ hardly longer than the metatarsi. Wings lightly tinged with brownish; Cu₁ separated at its origin from the vein.

Female. Head above black. The yellow of the mesonotum has an elongated black spot or stripe in the middle, narrowed to a point, and separated from the same color of the sides by a slender, curved, yellow stripe, posterior half of the pleura black. Wings with a brownish crossband distally. Abdomen almost wholly black. "Mexico."

In one male (from Medellin) the abdomen is yellow, with large black spot on each side of the segments, except the sixth; hypopygium is also black. In one female (from Orizaba) the median spot of mesonotum is absent and the fascia of the wing is obsolete.

9. *Leia twinthemii* Lehmann. ✓

Ins. Spec. in agro Hamb. captæ. 39. 1822.

Male and female. Length 4.5 mm. Head dusky yellow, face and palpi pale yellow, 3 basal joints and under side of joints 4 and 5 reddish yellow. Thorax yellow, with 3 stripes on mesonotum of which the middle one is geminate, the center of the scutellum, the middle of the metanotum, and posterior margin of metapleural lobes, brownish black; hairs pale; setæ brownish. Tergites brown, bases of all but the first broadly yellow, the brown produced forward on the middle line; venter and hairs yellow; hypopygium yellow, the ventral appendages black (Fig. 164). Coxæ and legs yellow, apices of trochanters, of hind femora, black, tarsi infuscated; spurs dusky yellow. Wings hyaline with brown markings as figured (Fig. 198). Halteres yellow. Maine; N. Y.; Wis., (W.M.W.); Oregon and Washington (J.M.A.); "Canada; N. H."

10. *Leia striata* Williston.

Kansas Univ. Quart. II. 60. 1893. (Neoglyphyoptera).

Male. Length 5 mm. Head yellow, the occiput somewhat brownish; antennæ brown, the basal joints yellow. Thorax yellow; mesonotum with 4 brown stripes, the median ones narrower, narrowed posteriorly and separated by a slender line, the lateral ones abbreviated in front; metanotum brown; bristles of the mesonotum well developed, as are also those of the trichostical row. Abdomen black, the anterior part of the segments yellow or brown. Legs yellow, tip of the hind femora and tibiæ and all the tarsi brown; front metatarsi as long as the tibiæ. Wings yellowish hyaline; an irregular brown band across the outer part, and brown spots on the crossvein and on Cu₂; anal vein incomplete; the subcosta terminates about opposite the furcation of the cubitus, and the subcostal crossvein is situated beyond its middle; the R-M crossvein longer than the last section of R. "Washington."

Var. a. A number of specimens resemble both the above and the following species (*L. lineola*) in most particulars, differing from the former and resembling the latter in the pleural marking; but differ from the latter in having hind coxæ and femora as in the former. In some specimens the head is marked as in the former while others are marked as in the latter. The forceps limb of a Wyoming specimen is shown in figure 165. The last section of R_1 is at least as long as the R-M crossvein (Fig. 199). The preapical wing band is broad except in the Carolina specimen. Sanford Univ. (J.M.A.); Marin Co. (Hy Edwards), Calif.; Little Wind River, Wyo., (W.M.W.); and N. C.

11. *Leia lincola* Adams.

Kansas Univ. Science Bul. II. 25. 1903. (*Neoglaphyoptera*).

Female. Length 4 mm. Differs from *L. striata* in the following particulars: The brown of the occiput is sharply defined, the center and sides being yellow; pleura with a brown spot anterior to and above the middle coxæ, metapleura above hind coxæ brown; the last 2 abdominal segments almost wholly yellow; all trochanters, the posterior coxæ and femora black, the latter with a narrow longitudinal line on the inner and outer sides, yellow; the brown crossband on outer part of wing is much broader. "Karn Co., Calif."

12. *Leia unicolor* Walker.

List of Diptera, Brit. Museum I. 93. 1848.

Body tawny; head reddish brown above; feelers and eyes black; the former tawny at the base; palpi yellow; hips and thighs yellow, shanks and feet dull tawny; wings colorless; veins brown; poisers yellow. Length of the body 5 mm., of the wing 10 mm. St. Martin's Falls, Albany River, Hudson's Bay.

Whether the species belongs to this genus cannot be determined from the description.

13. *Leia plebeja*, n. sp.

Male and female. Length 3.5 mm. Length of wing 3 mm. Pale reddish yellow; antennæ robust, longer than the head and thorax, six or seven apical joints somewhat infuscated; face and

palpi pale; ocelli narrowly margined with black; thorax with a rufous tinge, its dorsum shining, covered with yellowish hairs interspersed with a few black ones and crossed by 4 longitudinal pale rufous bands, the 2 median of which are approximated and extend from the anterior almost to the posterior edge, while the 2 latter are broader and abbreviated before and behind. Scutellum broad and short, pale yellow, with 4 long pale bristles inserted on the posterior margin. Metanotum fuscous; pleura reddish yellow, slightly tinged with fuscous at the insertions of the posterior coxæ. Abdomen pale reddish yellow; the posterior third or half of each segment deep fuscous, or black; hypopygium yellow with blackish appendages (Fig. 166). Legs pale yellow throughout, tarsi but very slightly infuscated toward their tips. Spurs yellow. Halteres pale yellow. Wings grayish hyaline, immaculate, yellowish towards their bases and along their costal margins; veins yellowish (Fig. 200). Lawrence, Kas. (J.M.A.). Also a single specimen from Wisconsin with the MS name *plebeja* (W.M.W.).

14. *Leia hyalina* Coquillett.

Journal N. Y. Ent. Society XIII. 68. 1905. (*Lejomya*).

Length 4 mm. Yellow, the antennæ except at base, a spot on the front, 3 spots on the pleura, middle of metanotum, hind margins of abdominal segments, also apices of tarsi, black. Body polished, the short hairs yellow, the longer hairs and bristles of mesonotum and scutellum chiefly brown. First joint of front tarsi as long as the tibiæ. Wings hyaline, upper branch of cubitus usually interrupted at the base. "Las Vegas Hot Springs, N. M."

15. *Leia oblectabilis* Loew.

Berlin. Ent. Zeitschr. XIII. 146. 1869. (*Glaphyroptera*).

Female. Length 2.9 mm; wing 3 mm. Head yellow, palpi and antennæ paler, the latter darker toward the tip; ocelli black. Thorax wholly yellow, pile yellow, the setæ darker. Abdomen yellow, tergites with black posterior fasciæ which are produced triangularly along the middle line, usually reaching the anterior margin in all but the first segment, sixth segment nearly wholly blackish; seventh short, tipped with yellow; venter yellow, sixth segment black or blackish. Legs pale yellow, tips of hind

femora black, spurs and tibiae yellow, tarsi toward their apices subfuscous. Wings yellowish, tinged with cinereous, along the costa more yellow; preapical fascia wide, entire, slightly arcuate, fuscous spot at the proximal end of the crossvein and another below Cu₂ near its tip. Halteres yellow. "Middle States."

Male. Similar to female in coloring, but three thoracic stripes are feebly indicated. Hypopygium yellow (Fig. 167). Wing venation as shown (Fig. 201). Both sexes from N. C. (C.U.), Wis. (W.M.W.), Ohio and Ithaca, N. Y. July-Sept.

Var. a. Female. Differs from the foregoing in having the crossvein longer than the apical section of R₁, and in having narrower abdominal fasciae which are not produced along the middle line. This specimen may represent a distinct species. Longmire's Springs, Mt. Rainier, Wash. (J.M.A.)

16. *Leia concinna* Williston.

Trans. Ent. Soc. London 259. 1896. (*Neoglaphyroptera*).

Female. Length 4 mm. Differs from *oblectabilis* as follows: Antennae brown or blackish, the basal joints yellow; bristles and very short hair of the thorax black. Leg proportions as far as given by Williston are the same as for *oblectabilis*. "St. Vincent Isl., W. I."

17. *Leia dryas* n. sp.

Male and female. Length 3.5 to 4 mm. Pale yellow; each of the black ocelli surrounded by a narrow black border; antennae scarcely as long as the head and thorax, growing fuscous on their apical half. Thoracic dorsum with sparse yellowish hairs among which are scattered a few black ones. There are traces of 3 or 4 longitudinal reddish bands. Scutellum concolorous with the thoracic dorsum; metathorax and postalar tubercle inclining to fuscous; a small black dot back of the insertion of each wing. Abdomen rather thickly covered with pale yellow hairs; the posterior fourth or third of each segment fuscous. Genitalia of male pale yellow. (Fig. 168). In the female the apical half of the abdomen, above and below, is fuscous. Legs paler than the thorax and abdomen; fore tibiae less than half the length of the fore tarsi; apices of hind femora black; tarsi fuscous. Halteres pale yellow. Wings yellowish

gray, the yellow tint being very noticeable at the base and along the costal margin; veins pale yellow. A slightly crescentic fuscous band passes over the wing before the apex, growing paler as it nears the posterior margin. There is no fuscous margin to the anal veins (Fig. 202). Southeastern Wisconsin. Specimens bearing MS name *dryas* (W.M.W.).

18. *Leia cincta* Coquillett.

Proc. Acad. Nat. Sc. Phil. 308. 1895. (*Neoglyphyoptera*).

Male. Length 4.5 mm. Head, including the mouth parts, yellow, each ocellus situated on a black spot, the median very small; antennæ yellow on the 6 basal joints, the remainder blackish. Thorax, pleura and scutellum yellow, a large black vitta at base of each wing extending across the metanotum. Abdomen shining black, base of each segment and the whole of the sixth and seventh, yellow. Legs yellow, bristles of front tibiæ minute, those of the others large. Wings yellowish hyaline, unmarked; base of the radial sector slightly distad of the forking of the media. "Tick Isl. Florida." *Leia*

A male specimen from Opelansas, La., and another from Wisconsin (W.M.W.) which I identify as this species have the center of the metanotum, and the venter of the abdomen, yellow. The hypopygium and the wing of the Louisiana specimen are shown in the figures. (Figs. 98, 203).

19. *Leia decora* Loew. V

Berl. Ent. Zeitschr. XIII. 144. 1869. (*Glaphyoptera*).

Female. Length 3.5 mm; wing 3.3 mm. Head yellow; antennæ except the base subfuscous or fuscous; lateral ocelli margined with black, middle ocellus wanting. Thorax yellow, on each side near the base of the wing with a blackish spot; the setæ blackish, the pile yellowish; disk of the scutellum fuscous; metanotum with median fuscous vitta; lateral tubercles blackish. Abdomen yellow, the tergites widely and sharply margined with black, the last two segments dorsally and ventrally wholly black. Coxæ and legs pale yellow, apex of hind femora black, tibiæ and spurs yellow, tarsi nearly wholly blackish. Wings yellowish tinged with gray, toward the costa and base more yellowish, stronger veins fuscous; preapical fascia perpendicular, paler posteriorly, Cu₂ accompanied by a subfuscous cloud. "Georgia."

Specimens of both sexes taken June-September at Ithaca, N. Y., do not differ from the type in the museum at Cambridge. Hypopygium and wing as figured. (Figs. 99, 204).

20. *Leia opima* Loew. ✓

Berlin. Ent. Zeitschr. XIII. 145. 1869. (*Glaphyroptera*).

Male and female. Length 3.8 mm.; wing 4.1 mm. Head yellow, vertex and upper half of occiput fuscous; antennæ fuscous, scape, first flagellar joint and palpi yellow. Thorax including scutellum yellow; dorsum shining, on each side with large, black, oval spot which is produced forward to the anterior third of thorax leaving only a narrow yellow vitta in the center; the metathoracic tubercles and the metanotum black. Pile yellow, on the darker parts, dusky. Abdomen largely black, the base of the second tergite and the anterior angles of the following ones, the hypopygium (Fig. 100) and the venter, yellow. Coxæ and legs pale yellow, extreme apices of hind femora black, tarsi except their bases, fuscous black. Wings dilutely cinereous, veins fuscous; the preapical fascia paler toward the posterior margin; a fuscous spot covers the base of the cross-vein and the petiole of the media; another spot is behind Cu₂ (Fig. 205). Halteres yellow. "Connecticut;" Wis. and Wyo. (W.M.W.); R. I. (J.B.); N. C. (W.B.); Mass. (C.W.J.); Maine; N. H.; N. J., (Weidt). [11]

21. *Leia sublnata* Loew.

Berlin. Ent. Zeitschr. XIII. 145. 1869. (*Glaphyroptera*).

Female. Length 4.3 mm; wing 4.5 mm. Head yellow, ocelli margined with black, middle one minute; antennæ subfuscous toward the tip; palpi pale yellow. Thorax yellow; mesonotum on each side near the base of the wing and in front of it, with a small black spot, metathoracic lobes sometimes margined with subfuscous. Abdomen yellow, first and sixth tergite with narrow black margin; the 4 intermediate with wide fasciæ which are suddenly narrowed at the lateral margins; seventh wholly yellow; venter yellow. Coxæ and femora pale yellow; extreme tip of hind femur black; tibiæ and spurs yellow; tarsi except their bases, fuscous black. Wings yellowish, veins fuscous, toward the base in part yellowish; near the tip with a slender arcuate fascia; Cu₂ with a fuscous cloud behind it. "N. Y."

Male. Like the female in color characters. Wing and hypopygium figured (Fig. 101, 206). Ithaca, N. Y.; Brookside, N. J., (Weidt).

A female specimen from Pennsylvania has narrower abdominal fasciæ; one from B. C. has broader wing faciæ; one from N. C. (W.B.) has a faint cloud upon the crossvein and petiole of the media, and less distinct abdominal fasciæ.

✓ 22. *Leia bivittata* Say.

Jr. Acad. Nat. Sc. Phil. VI. 152. 1829.

Length 3.75 mm. Honey yellow; trunk bilineate, and tergum with 2 series of black punctures. Body rather pale honey-yellow; antennæ black at tip; stemmata very distinct, in a curved line; thorax a little hairy, on each side a dilated black vittæ; wings fasciate near the tip; tergum on each side with a series of oval black spots; coxæ white. "Indiana."

To the above may be added the following: Ocelli are margined with black; the lateral spots on the mesonotum are large, oval, shining black, connected posteriorly with a broad, sometimes somewhat interrupted, black stripe passing under the wing and covering the lateral lobes of the metathorax, sometimes the metanotum is also black. The tergites each usually have a broad transverse fascia which is deeply emarginate in front, sometimes wholly broken giving rise to the condition described by Mr. Say. Male and female are similar in coloring. (Fig. 207). Conn.; R. I. (C.W.J.); N. C. (F. Sherman and W.B.); Wis.; Ill. (W.M.W.); Kas.; Minn.; Iowa; Mich. (J.M.A.); Ithaca, N. Y. 11

12. *Genus Phthinia* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 779. 1863.

Ocelli 3, laterals widely remote from the eye margin. Thorax small, highly arched; abdomen long, filiform in the male, a little broader in the female. Legs very long and slender. Wings shorter than the abdomen; costa extends beyond the tip of the radial sector; subcosta ends in the subcosta; subcostal crossvein (Sc₂) present; petiole of the media very short; cubitus forks distad of the fork of the media and its branches are widely divergent. (Figs. 208, 209).

Table of species.

- a. Fore metatarsus shorter than its tibia; moderately slender species with moderate or strong tibial spurs.
 - b. Subcostal crossvein (according to the figure) distad of the base of the radial sector (St. Vincent Is.). *Megalopelma*.
 - 1. *fraudulenta*.
 - bb. Subcostal crossvein situated slightly distad of the middle of the basal cell; subcosta ends about opposite the base of the radial sector.
 - 2. *curta* n. sp.
- aa. Fore metatarsus over twice as long as its tibia; very slender and delicate species with weak tibial spurs.
 - 3. *tanypus*.

1. *Phthinia fraudulenta* Williston.

Trans. Ent. Soc. London. 263. 1896.

Male. Length $2\frac{1}{2}$ -3 mm. Antennæ brown or blackish, the basal joints somewhat yellowish; the joints of the flagellum closely set together, somewhat compressed; front and face blackish. Mesonotum reddish-brown, shining, with black hair; pleura and coxæ yellow. Abdomen reddish brown or blackish, black at tip, venter yellow. Legs yellow, the tarsi brownish, becoming black at the tip, spurs of tibia stout; hind tibiæ with 2 rows of spines; front metatarsi distinctly shorter than their tibiæ; hind tarsi longer than their tibiæ. Wings tinged with blackish, due to the easily perceptible pubescence. "St. Vincent Isl." Williston. Judging from the figure this species belongs to Enderlein's new genus, *Megalopelma*.

2. *Phthinia curta* n. sp.

Male and female. Length 3 mm. Head black, mouth parts and basal joint of antenna yellow; the flagellum, two large spots on each pleuron, 3 stripes on mesonotum, the metanotum, abdomen, and tarsi pale brown, other parts yellow. The median thoracic stripe is wedge shape, contiguous to anterior margin, abbreviated posteriorly, the laterals are abbreviated anteriorly, converge posteriorly, nearly meeting at the scutellum. Fore metatarsus is about .8 as long as its tibia; tibial spurs of moderate size, those of the hind legs about as long as the 4th tarsal joint. Wings hyaline, grayish, veins brown, venation as figured (Fig. 208). Hypopygium (Fig. 102). Halteres yellow. Ithaca, N. Y.

3. *Phthinia tanypus* Loew.

Berlin. Ent. Zeitschr. XIII. 143. 1869.

Male and female. Length 6-6½ mm. Very slender, legs very delicate, much elongated. Head yellowish to subfuscous; antennæ fuscous, immediate base and scape, yellow; palpi yellow, dusky toward the tips. Thorax opaque, ferruginous to fuscous, pleura paler, dorsum not vittate; humeri and lateral line from the humerus to the base of the wing white pollinose. Abdomen slender, much elongated, fuscous black, each segment paler toward the base. Genitalia pale; hypopygium small. Coxæ and legs yellowish, apical half of each femur, the tibia and tarsi more dusky. Fore metatarsus about 2.4 times its tibia in length. Halteres yellow with dusky knobs. Wings saturate cinereous or fuscous cinereous tinged, veins fuscous black, in the female the wing membrane tinged along the course of the veins. (Fig. 209). "N. Y.," Montpelier, Vt. (C.W.J.); Old Forge, N. Y., (J.G.N.).

13. Genus *Sackenia* Scudder.

Bul. U. S. Geol. Survey. Terr. III. 753. 1877.

This fossil genus resembles *Boletina* from which it differs mainly in the wing venation. The subcostal crossvein is wanting, the radial sector is much curved, nearly reaching the apex of the wing and the anal vein appears to reach the margin. It is represented by *S. arcuata* Scudder (l. c.) and *S. gibbosa* Cockerell. The latter species has a shortened anal vein and may be therefore better included with *Boletina*.

14. Genus *Calosia* Winnertz. ✓ 

Verh. Zool.-bot. Ges. Wien. XIII. 796. 1863.

Ocelli 3, laterals remote of the eye margin. Antennæ of the male elongate, the intermediate joints from 3 to 6 times as long as broad. Abdomen 6-segmented; slender and compressed in the male, clavate and somewhat depressed in the female; hypopygium large (Figs. 103, 104). Wings elongate oval; costa far produced beyond tip of the radial sector; subcostal vein ends in the costa at or beyond 1-3 the length of the wing; subcostal crossvein (Sc₂) wanting; media with short petiole; cubitus forks distad of the fork of the media. (Figs. 210-212).

Table of species.

- a. Thorax yellow; not vittate; abdomen of the male with narrow dorsal, ventral and lateral longitudinal stripes; abdomen of the female, brown. 1. *flava*.
- aa. Thorax dark. or else with dark stripes.
- b. Thorax dark, not vittate, abdomen unicolorous.
- c. Third vein strongly bowed forward toward its apex; costal vein extends slightly over 1-2 way from apex of Rs to that of M₁; the media forking nearly 1-2 way between the crossvein and the fork of the cubitus; male. 2. *pygophora*.
- cc. Costal vein but slightly produced. See *Boletina nacta*.
- bb. Thorax yellowish or with distinct vittæ.
- c. Abdominal segments with yellow posterior margins in the female, or with lateral spots in the male. 3. *flavicauda*.
- cc. Abdomen unicolorous.
- d. Costa produced scarcely half way from the tip of Rs to that of M₁; wing hyaline. 4. *gracilis* n. sp.
- dd. Costa produced fully half way from the tip of Rs to that of M₁; wing more or less cinereous.
- e. Subcosta ends in the costa about opposite middle of R-M crossvein; veins margined with cinereous; female. 5. *lepida* n. sp.
- ee. Subcosta ends noticeably distad of middle of the R-M crossvein; apex of wing more or less cinereous. 6. *modesta* n. sp.

1. *Coelosia flava* Stæger.

Kroyer's Tidsskr. Ent. 237. 1840. (*Boletina*).

Male and female. Length 4-4½ mm. Yellow, antennæ and tarsi darker, abdomen of the male with a slender dorsal, ventral and 2 lateral blackish lines; sixth segment wholly blackish; abdomen of the female sordidly brown. An European species said to occur also in the United States.

2. *Coelosia pygophora* Coquillett.

Proc. Entomol. Soc. Wash. VI. 170. 1904.

Male. Length 3 mm. Black, the first 2 joints of the antennæ, a large humeral spot, the hypopygium, halteres, coxæ, femora, tibiæ and bases of tarsi, yellow. Body thinly grayish pruinose, the hairs yellowish, the bristles on sides of thorax and the hairs of the hypopygium chiefly brown; hypopygium very large. Wings grayish hyaline, subcosta terminating in the costa slightly before the base of the radial sector; the radial sector strongly bowed forward toward its apex; costal vein ex-

tending slightly over half way from apex of Rs to that of M₁, the latter vein forking midway between the small crossvein and fork of the cubitus. "San Mateo Co., Cal."

3. *Coelosia flavicauda* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 798. 1863.

Male and female. Length 3.5 mm. Thorax yellow, with 3 confluent blackish vittæ; flagellum of the antenna, head, abdomen, and tarsi blackish, the basal antennal joints, palpi, lateral spots on segments, 2, 3 and 4 of the abdomen, and hypopygium in the male and posterior margins of the segments in the female, yellow. Wings hyaline scarcely tinged, veins brown, the radial sector slightly undulate. San Jose and Pacific Grove, Cal. (Aldrich).

4. *Coelosia gracilis* n. sp.

Male and female. Length 3.5 mm. Head black, mouth parts and basal antennal joints, yellow; flagellum fuscous. Thorax reddish yellow, with 3 black dorsal vittæ, the middle one geminate and wedge shaped, metanotum dusky. Abdomen fuscous; hairs yellow, hypopygium yellow. Legs yellow, tarsi darker, fore metatarsus about 3-4 as long as its tibia. Wings hyaline, veins dusky yellow, venation as figured (Fig. 210). Cal. (Bradley), Col. (W.M.W.).

5. *Coelosia lepida* n. sp.

Male and female. Length 3.5 mm. Head black, mouth parts and basal antennal joints yellow; flagellum fuscous. Thorax reddish yellow, with 3 black dorsal vittæ, the middle one geminate and wedge shaped; metanotum dusky. Abdomen pale fuscous; hairs yellow; hypopygium as figured (Fig. 103). See also plate 7, fig. 7 in Fasc. 93, Genera Insectorum. Legs yellow, tarsi darker, fore metatarsus about 3-4 as long as the tibia. Wings cinereous hyaline, the veins margined with cinereous. Halteres yellow. This species differs from *C. gracilis* in its wing venation; the costa being more produced, the subcosta shorter, and the veins more prominent (Fig. 211). Los Angeles (W.M.W.) and Palo Alta, Cal. (Aldrich).

6. *Coelosia modesta* n. sp.

Male and female. Length 3 mm. Head black, mouth parts and basal antennal joints yellow, flagellum fuscous. Thorax

reddish yellow, with 3 vittæ, spots on pleura and the metanotum black. Hairs yellow. Abdomen blackish; hypopygium (Fig. 104.) Legs yellow, tarsi dusky, fore metatarsus about 4-5 as long as the tibia. Wings hyaline with faint gray cloud on apex of wing extending to the cubitus, less marked in the female; venation as figured. (Fig. 212). This species differs from *C. gracilis* in having the costa more produced and in its apical wing cloud. Palo Alta (Aldrich), Berkeley, Cal., (W.M.W.).

15. Genus *Syntemna* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 767. 1863.

Ocelli 3 in number, subequal in size, laterals remote from the eye margin. Abdomen 7-segmented, cylindrical. Legs stout, of moderate length. Wings large; costa extends beyond the tip of the radial sector; subcosta either ends free, in which case the subcostal crossvein is present near the tip, or ends in R_1 beyond the middle of the basal cell; the media forks distad of the base of the radial sector; the cubitus forks proximad of the fork of the media (Figs. 213-215). The position of the ocelli will distinguish this genus from *Trichonta*. The position of the ocelli and the oblique position of the crossvein distinguishes it from *Docosia*.

Table of species.

a. Males.

b. Antennæ long, third joint over twice as long as broad.

c. Cubitus forks slightly distad of the crossvein; anal vein not much produced beyond the fork of the cubitus.

1. *rejecta* n. sp.

cc. Cubitus forks far proximad of the crossvein.

2. *longicornis*.

bb. Antennæ rather short, third joint but little longer than broad; cubitus forks proximad of the crossvein.

c. Posterior margins of abdominal segments yellow.

d. Anal vein extends at least a fourth of its length distad of the fork of the cubitus.

e. Abdomen brown.

3. *vittata*.

ee. Abdomen fasciate with yellow.

3a. *vittata* var. *fasciata* n. var.

dd. Anal vein scarcely extends beyond fork of the cubitus; head black, cubitus forks only slightly proximad of the crossvein; fore metatarsus nearly 7-8 as long as its tibia.

4. *separata* n. sp.

cc. Posterior margins of abdominal segments black; head yellow, cubitus forks far proximad of the crossvein.

5. *polyzona*.

- aa. Females. Antenna short, third joint but little longer than broad; cubitus forks far proximad of the crossvein; anal vein extends far distad of the forks of the cubitus. 3. *vittata*.

Syntemna mutor Adams is identical with *Docosia dichroa* Lw.

1. *Syntemna rejecta* n. sp.

Male. Length 4 mm. Head black, face, palpi and basal joints of the antennæ, yellow; antennæ about twice as long as the thorax. Thorax yellow, two oval spots on the mesonotum over the base of the wing, dark brown, setæ, yellow. Abdomen yellow, the whole of the first segment except a spot on each side, and a fascia covering the basal 1-3 to 1-2 of each of the following segments, brown; hypopygium (Fig. 105); setæ and the finer hairs pale. Legs yellow, tarsi darker, setæ of hind tibiæ scarcely longer than the diameter of the tibia, fore metatarsus nearly 3-4 as long as the tibia. Wings hyaline, veins brown, venation as figured (Fig. 213). Halteres yellow. Blue Hills, Mass. July (C.W.J.).

2. *Syntemna longicornis* Coquillett.

Proc. U. S. Nat. Museum. XXIII. 597. 1901. (*Docosia*).

Male. Length 5 mm. Yellow, the front, vertex, antennæ except the 2 basal joints, 3 vittæ on mesonotum, dorsum of first abdominal segment except a spot on each side, a fascia at base of remaining segments and the genitalia, black; tarsi becoming brown toward their apices; antennæ more than twice as long as the head and thorax, the third joint over twice as long as wide; body polished, its hairs and those of the coxæ and femora yellow; wings hyaline, the subcosta ends slightly beyond middle of the basal cell, the R-M crossvein less than twice as long as first section of radial sector, cubitus forking before the crossvein. "N. H." (Coq.); Brookline, Mass., August (C.W.J.). In the Massachusetts specimen the median vitta is obsolete.

3. *Syntemna vittata* Coquillett.

Proc. U. S. Nat. Museum. XXIII. 597. 1901. (*Docosia*).

Male. Length 4 mm. Head black, mouth parts, and broad base of antennæ yellow, third joint of antennæ only slightly longer than broad; body polished, brown, a median vitta on the mesonotum, expanded at the front end and crossing the pleura, also middle of breast yellow, middle of metanotum reddish yel-

low; hairs of thorax black; halteres and legs yellow, changing into brown at apices of the tarsi; bristles of hind tibiae longer than the greatest diameter of the tibiae; wings grayish hyaline, the cubitus forks far proximad of the forking of the media; anal vein reaching over 1-4 of its length beyond the forking of the cubitus. "N. H." (Coq.). The type of *vittata* has more or less yellow on the sides of the intermediate segments of the abdomen.

Female. A specimen from Friday Harbor, Wash. (Aldrich, Col.) has the thorax largely yellow, the pleura and large oval spots on the mesonotum above the base of the wings, brown. The other parts as described for the male. Venation as figured (Fig. 214). This may be a distinct species but until a male from the same locality is found it better be left here.

3a. *Sytemna vittata* var. *fasciata* n. var.

Male. Differs from *vittata* in having abdomen yellow, the whole of the first segment and the basal 1-3 of 1-2 of each of the following, dark brown; hypopygium (Fig. 106). Venation similar to that shown in Fig. 214. Eastport, Maine.

4. *Sytemna separata* n. sp.

Male. Length 3.5 mm. Head black; face, palpi and 5 basal joints of each antenna yellow; antennae but little longer than the head and thorax. Thorax yellow, the pleura largely and 2 oval spots on the mesonotum over the base of the wing, dark brown, setae black. Abdomen yellow, the whole of the first segment and a large fascia like spot nearly covering the basal half of each of the following segments, brown; setae black, the finer hairs pale. Legs yellow, tarsi darker, setae of the hind tibiae longer than the diameter of the tibia, fore metatarsus nearly 7-8 as long as the tibia. Wings hyaline, venation as figured. (Fig. 215). Halteres yellow. St. Johnsbury, Vt., June, (C.W.J.).

5. *Sytemna polyzona* Loew.

Berlin. Ent. Zeitschr. XIII. 142. 1869.

Male. Length 3.8 mm. Head and its parts yellow, antennae darker apically; ocellar spot black. Thorax and abdomen yellow, the segments of the latter posteriorly fasciate with black;

pile yellow. Legs yellow, tarsi darker. Wings tinged with yellow, the anterior veins darker. Halteres yellow, the knob dusky at base.

An examination of the type shows that the antennæ are short, the intermediate joints being but little longer than wide; that the cubitus forks far proximad of the crossvein and that the anal vein ends slightly distad of the R-M crossvein. "Middle states" (Loew); Brookside, N. J., (Weidt), Aug.

16. Genus *Megophthalmidia* Dziedzicki.

Horæ Soc. Ent. Ross. XXIII. 525. 1889.

Ocelli 3, all large, the laterals widely remote from the eye margin. Thorax short, highly arched. Abdomen short, 6-segmented; hypopygium inflected under the abdomen. Legs stout, fore legs short. Wing oblong-oval; costa produced far beyond the tip of the radial sector; subcosta rather short, ending in R₁; the radial sector arises near the middle of the wing; petiole of the media long; cubitus forks proximad of the proximal end of the R-M crossvein which is nearly longitudinal in position; anal veins vestigial. (Fig. 216). Resembles *Docosia* but differs in the position of the lateral ocelli.

Megophthalmidia occidentalis Johannsen.

Genera Insectorum, Fasc. 93. 89. 1909.

Male and female. Length 2.5 mm. Head black; antennæ and proboscis brown; palpi yellow; the antennæ robust, about as long as the thorax, the intermediate joints cylindrical, shorter than broad, pilose; face setose. Thorax brownish yellow, including pleura, sternum, and scutellum; the metanotum more brownish, especially anteriorly. Setæ of the lateral and anterior margins of the thorax rather conspicuous; about 5 pairs of scutellar setæ, the longest about as long as the tibial spurs. Abdomen brownish yellow, appearing darker than the thorax because of the presence of black setulæ; apically somewhat darker; hypopygium as figured on Plate 7, Fig. 5 in Genera Insectorum, Fasc. 93; ovipositor yellow, conical, somewhat laterally compressed, the apices of the pointed lateral plates, with tuft of setæ. Legs, including coxæ, pale yellow, hind pair slightly darker; fore femora about as long as the coxæ, hind femora about twice as long; fore metatarsus over 1-2 as long

as the tibia; the black tibial spurs about 1-2 as long as the corresponding metatarsus; coxæ and femora with black setæ which are longer and more conspicuous on the outside near the tip; tibial setæ small; empodium very distinct; tarsal claws each with large tooth near base. Wings extend beyond tip of abdomen; hyaline, veins yellow; venation as shown (Fig. 216). Halteres yellow. Friday Harbor, Mt. Rainier, Wash., July and August. (Aldrich).

17. Genus *Docosia* Winnertz. *F*

Verh. Zool.-bot. Ges. Wien. XIII. 802. 1863.

Ocelli 3, the middle one smaller, the laterals close to the eye margin. Thorax large, short; abdomen short. Legs strong, particularly the hind pair. Wings large, broad, longer than the abdomen; costa produced beyond the radial sector. Subcosta ends in R_1 or ends free; basal section of the radial sector nearly perpendicular in position, the second section in the same right line with the R-M crossvein which is longitudinal in position; base of fork of cubitus under or proximad of the fork of the media (Fig. 218).

Table of species.

- | | |
|--|--------------------------|
| a. Abdomen reddish yellow, thorax shining black. | 1. <i>dichroa</i> . |
| aa. Abdomen black. | |
| b. Subcosta ends in R_1 . | |
| c. Media and cubitus fork about opposite the base of the radial sector; third antennal joint only slightly longer than broad. | 2. <i>obscura</i> . |
| cc. Media and cubitus fork noticeably proximad of the base of the radial sector; third antennal joint about twice as long as wide. | 3. <i>nigella</i> n. sp. |
| bb. Subcosta ends free, its basal section strong, apically much attenuated; legs mainly dark brown. | 4. <i>nitida</i> n. sp. |
- For *D. longicornis* and *vittata* see *Syntemna*.

1. *Docosia dichroa* Loew.

Berlin. Ent. Zeitschr. XIII. 148. 1869.

mutor, Adams; Science Bul. Kas. Univ. II. 24. 1903. (*Syntemna*).

Male and female. Length 3-3.5 mm. Head and antennæ black, palpi fuscous or subfuscous. Thorax wholly black, shining. Abdomen reddish yellow in the male, the last two

segments and the hypopygium (pl. 7, fig. 11, Genera Insectorum, Fasc. 93) fuscous or black. Terminal appendage of lateral sclerite (Fig. 108). Legs including coxæ reddish yellow; tarsi largely infuscated; fore metatarsus over 1-2 as long as the tibia. Wings hyaline, anterior veins dusky; venation as shown (Fig. 218). "D. C.;" "N. J.;" (C.W.J.); "Mo." (*mutor*, Adams); Kas. (J.M.A.); Wis.; Mich.; Ithaca, N. Y.

2. *Docosia obscura* Coquillett.

Proc. U. S. Nat. Museum XXIII. 597. 1901.

Male. Length 3-3.5 mm. Black, the halteres and legs yellow, bases of coxæ, femora on base of under side, and the tarsi brown; third joint of antennæ only slightly longer than broad; body polished, the hairs yellow; bristles of hind tibiæ shorter than greatest diameter of the tibiæ; wings hyaline, veins brownish, subcosta ends in R₁, R-M crossvein at least 4 times as long as the base of the radial sector, media and cubitus fork opposite the base of the radial sector, anal vein almost reaching the fork of the cubitus. "White Mts., N. H." (Coq.). A defective specimen from Muir Woods, California, collected by Dr. J. C. Bradley probably also belongs here.

3. *Docosia nigella* n. sp.

Male. Length 4 mm. Black, the halteres, palpi, third antennal joint, and legs yellow, bases of the coxæ, under side and apices of the femora, and the tarsi brown; third antennal joint twice, the following joints about 3 times as long as broad; body polished, the hairs pale; bristles of hind tibiæ not longer than greatest diameter of tibia. One claw of each fore foot sickle shaped, with tooth proximad of the bend, the other claw smaller and with two teeth; fifth tarsal joint of fore foot enlarged. Wings hyaline, veins brownish, venation as figured (Fig. 219). Hypopygium (Fig. 109). Differs from *D. obscura* mainly in wing venation. Head of Tsirku River, Alaska, July-August, (Prof. O. M. Leland).

4. *Docosia nitida* n. sp.

Male and female. Length 2 mm. Black; the halteres and tibial spurs pale yellow, the fore femora, fore tibiæ and knees sometimes, brownish yellow; the tarsi and the other legs dark

brown, wings hyaline, anterior veins brownish; posterior veins pale, all other parts black; body shining, hairs pale, sparse. Antennæ short, intermediate joints not longer than broad. Setæ of hind tarsi shorter than diameter of tibia. Venation as figured (Fig. 220). Hypopygium (Fig. 110). Brookings, S. D. (J.M.A.)

✓ 18. Genus *Anatella* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 854. 1863.

Ocelli 3, the middle one smaller than the laterals, the latter contiguous to the eye margin. Abdomen slender, compressed, constricted at the base. Legs long, spurs unequal. Wings elongate oval, anal lobe small; costa produced far beyond the tip of the radial sector; subcostal vein very short, ending in R_1 ; fork of the cubitus may be proximal, under or distal of the fork of the media; anal stout but incomplete (Fig. 217). Very small species.

A. tacita is a fossil species from Colorado.

Anatella silvestris Johannsen.

Genera Insectorum. Fasc. 93. 91. 1900

Male and female. Length 2.5 mm. Head brown, eyes black, antennæ yellowish brown, the 3 basal joints and the palpi pale yellow; antennæ about twice as long as the thorax. Thorax pale brown, with indications of 3 darker stripes; hairs pale, setæ black. Abdomen pale brown (venter yellowish in the female), apical margin of each of the four posterior segments dark brown; hypopygium yellowish (Fig. 107). Coxæ and legs pale yellow, tarsi infuscated; fore metatarsus and tibia subequal in length; tarsal claw elbowed, apical part slightly sinuous, curved at the tip; basal tooth very small. Wings hyaline, veins dusky yellow; venation as shown (Fig. 217). Halteres yellow. Ithaca, N. Y. March and August.

✓ 19. Genus *Trichonta* Winnertz. E

Verh. Zool.-bot. Ges. Wien. XIII. 847. 1863.

Ocelli 3, the laterals large, close to the eye margin. Abdomen constricted at the base, compressed; hypopygium large. Wings large; costa scarcely noticeably produced beyond the tip of the radial sector; subcosta long, ending in R_1 beyond the middle of

the basal cell R; the cubitus forks proximad of the fork of the media (Figs. 221 to 223). Distinguished from *Syntemna* by the position of the lateral ocelli, in having the costa less produced beyond the tip of the radial sector, and in the arrangement of the setulæ of the wing in parallel rows.

Table of species.

- a. Length 6 mm; thoracic stripes subobsolete. 1. *perspicua*.
- aa. Length less than 5 mm.
 - b. Cubitus forks noticeably proximad of the proximal end of the crossvein; species over 3 mm. in length.
 - c. Fore metatarsus less than .8 of tibia in length; abdomen dark brown, hind margins of the segments broadly yellow; female. 2. *cincta* n. sp.
 - cc. Fore metatarsus over .8 of the tibia in length; abdomen yellow, each segment with a large sub-triangular spot; male. 3. *triangularis* n. sp.
 - bb. Cubitus forks at or distad of the proximal end of the crossvein.
 - c. Species over 3 mm. in length.
 - d. Cubitus forks at the proximal end of the crossvein; abdomen dark brown, each segment except the first with yellow margins. 4. *vulgaris*.
 - dd. Cubitus forks distad of the proximal end of the crossvein.
 - e. Thorax brown, humeri yellow; abdomen yellow, each segment with a large triangular brown spot; hind tarsi slightly shorter than its tibia. 5. *obesa*.
 - ee. Thorax yellowish, with 3 vittæ sometimes subcoalescent.
 - f. Abdomen largely brown, apical margin and large posterior lateral triangles, yellow; hind tarsi longer than tibia; Cu₂ somewhat sinuate. 6. *bellula* n. sp.
 - ff. Abdomen brown, segments yellowish at base. 7. *foeda*.
 - cc. Species less than 3 mm. in length.
 - d. Cubitus forks under the proximal end of the crossvein; hypopygium with slender clasper, each with about 10 strong setæ (Fig. 113). 8. *diffissa* n. sp.
 - dd. Cubitus forks only slightly proximad of fork of media; each clasper with a clavate basal lobe (Fig. 114); ventral aspect of hypopygium, apically, densely setose. 9. *patens* n. sp.

Trichonta Dawsoni is a fossil from British Columbia.

1. *Trichonta perspicua* Van der Wulp.

Tijdschr. v. Ent. XXIV. 142. 1881.

Male. Length 6 mm. Reddish yellow; antennæ 1.5 times as long as head and thorax, scape and basal joints yellow, remainder of flagellum fuscous. Thorax yellowish, with indica-

tions of 3 vittæ of which the median is geminate and most distinct. Abdomen slender, with a fuscous spot on each of the segments, that of the sixth nearly covering entire segment except the venter; hypopygium yellowish. Legs yellowish; coxæ each with black spot at apex; tibiæ a little darker, tarsi brown; fore metatarsus a fifth shorter than the tibia. Halteres yellow. Wings with yellowish gray tint; subcosta ends in R₁ beyond the middle of the basal cell; cubitus forks somewhat proximad of the fork of the media. "Quebec" (V.d.W.). "N. J."

2. *Trichonta cincta* n. sp.

Female. Length 3.25 mm. Head and antennæ fuscous, the face, palpi and scape yellow; antennæ about a third longer than head and thorax. Thorax yellow; dorsum with 3 wide brown stripes; scutellum, metanotum, and pleura largely brown; hairs pale. Abdomen black, shining, hind margin of each segment yellow. Legs and coxæ yellow, tarsi brown; a brown dash on under side of each femur; fore metatarsus over .75 as long as the tibia; hind tarsus slightly longer than its tibia. Wings hyaline, yellowish tinged, anterior veins brown; media forks slightly distad of the base of the radial sector; cubitus forks proximad of the proximal end of the crossvein, anal vein faint. Halteres yellow. Eastport, Me. (C.W.J.).

3. *Trichonta triangularis* n. sp.

Male. Length 4 mm. Head brownish yellow; face, palpi and basal joints of antennæ yellow, larger part of flagellum dark brown with whitish pubescence; antennæ about 2-3 longer than head and thorax. Thorax including pleura, scutellum, and metanotum yellow, mesonotum with 3 brown stripes; hairs yellow, setæ brown. Abdomen yellow, each segment with a large brown triangular spot, leaving the sides and narrow posterior margin yellow. Hypopygium brownish (Fig. 10, pl. 7 Genera Insectorum, Fasc. 93). Forceps (Fig. 111). Coxæ and legs yellow, tibiæ a little darker than femora, tarsi brownish, fore metatarsus about .95 as long as the tibia. Wings hyaline, yellow tinged. Venation as figured (Fig. 221). Halteres yellow. (Aug.) Ithaca, N. Y.

Var. a. Male. Differs only in having the fore metatarsus about 7-8 as long as the tibia. Ithaca, N. Y.

4. *Trichonta vulgaris* Loew.

Berlin. Ent. Zeitschr. XIII. 149. 1869.

Male and female. Length 3.2-3.5 mm. Head and antennæ fuscous, basal joints of the latter and palpi yellow. Dorsum of the thorax yellow with 3 fuscous stripes which are sometimes confluent; scutellum, metanotum and the pleura except between the fore coxæ and the humeri, fuscous. Abdomen fuscous, each segment except the first with a posterior fascia. Hypopygium black. Coxæ and legs yellow, tarsi darker; in the female the last 4 joints slightly tumid below. Wings cinereous, toward the costa yellowish; cubitus forks under the proximal end of the crossvein. "Md., D. C."

5. *Trichonta obsca* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 854. 1863.

Female. Length 4.5 mm. Fuscous; basal joints of the antennæ, palpi, humeri, legs and halteres yellow. Tarsi dark; femora with brown dash on the underside near the base; hind tarsi slightly shorter than the tibia. Abdomen yellow, with a triangular spot, covering the larger part of each segment. Wings grayish hyaline, the media forks under the base of the radial sector, the cubitus under the center of the crossvein. The male hypopygium is described and figured by Mik in Verh. Zool.-bot. Ges. Wien. XXX. 607. 1880. "Europe and Greenland."

6. *Trichonta bellula* n. sp.

Male. Length 3.5 mm. Head black, face, palpi and 4 basal joints of antennæ yellow, remainder of flagellum brown; antennæ about a third longer than the head and thorax. Dorsum of the thorax yellow with 3 brown stripes; pleura, scutellum and metanotum largely dark brown; hairs yellow, setæ brown. Abdomen dark brown, posterior margin of each segment produced anteriorly on the sides and anterior part of the venter, yellow; hypopygium dark (Fig. 112). Coxæ and legs yellow, tarsi darkened, each femur with a brown spot on the underside near the base; hind metatarsus slightly less than half as long as its tibia. Wings hyaline, grayish tinged, anterior veins brown; subcosta ends in R₁ beyond the middle of the basal cell; the media forks slightly distad of base of R_s; the cubitus forks

under the middle of the crossvein; Cu_2 somewhat sinuate; the anal vein and the petiole of the cubitus subequal in length. Halteres yellow. Mt. Ascutney, Vt., July (C.W.J.).

7. *Trichonta focda* Loew.

Berlin. Ent. Zeitschr. XIII. 150. 1869.

Female. Length 3.7 mm. Head and antennæ fuscous black, face and 3 basal joints of antennæ, yellow; palpi mainly yellow. Dorsum of thorax yellow, with 3 blackish stripes; metanotum, scutellum and pleura more or less fuscous; hairs of thorax pale, setæ black. Abdomen fuscous, each segment more or less yellow at the base. Coxæ and legs yellow, tarsi darker. Wings cinereous, yellowish toward the costa, the stronger veins fuscous; cubitus forks under or but very slightly proximad of the fork of the media. Halteres yellow. "Middle States."

8. *Trichonta diffissa* n. sp.

Male. Length 2.2 mm. Head brownish yellow; face, palpi and base of antennæ yellow; antennæ 1.5 as long as head and thorax. Dorsum of thorax yellow with 3 brown stripes which coalesce posteriorly; scutellum, metanotum, and hinder part of pleura, brown; hairs yellow, setæ brownish. Abdomen brown; the venter and both front and hind margins of the segments and the hypopygium (Fig. 113) yellow; larger part of fifth and sixth segments dark brown. Coxæ and legs yellow, tibiæ slightly darker, apex of each hind femur, and the whole of the tarsi brown. Wings hyaline with a yellowish tinge; venation as figured. Halteres yellow. Ithaca, N. Y., and Brookline, Mass., August (C.W.J.).

9. *Trichonta patens* n. sp.

Male and female. Length 2.2-2.5 mm. In color similar to the foregoing. In the type specimen, the thorax is largely yellow, thoracic stripes pale brown, and the apex of the hind femur is not brown. In other specimens the darker color predominates. Differs from *T. diffissa* in wing venation, the cubitus forking distad of the proximal end of the crossvein (Fig. 223). The hypopygium differs in having a clavate lobe about 1-2 as long as the clasper articulated near the base of each clasper; and in having the apex of the ventral sclerite densely setose (Fig. 114). Ithaca, N. Y., May and August.

20. Genus *Cordyla* Meigen. E

Illiger's Magazine II. 262. 1803; Klass. I. 93. 1804.

Polyxena. Nouv. Class. Mouches. 16. 1800. (Without type).

Front broad; eyes oval, ocelli small, 2 in number; contiguous to the eye margin; antennæ projecting forward, 2+9, 2+10, 2+12, 2+13, or 2+14 jointed, very short, but little longer than the height of the head, the joints shorter than broad, disk-like, closely sessile in dried specimens; palpi 4-jointed, basal joint small, second much enlarged, thickened (Fig. 54 Part I), third and fourth slender, almost filiform. Abdomen compressed, hypopygium of male small and inconspicuous. Legs slender, lateral setæ of hind tibiæ shorter than the diameter of the tibia at the widest part; posterior basal seta of hind coxa wanting. Costa of the wing does not extend beyond the tip of Rs; subcosta very short, curved toward R₁; media forks distad of the basal section of Rs; its posterior branch usually not reaching the wing margin (Figs. 224-228). The larvæ live in decaying wood and in fungi.

Table of species.

- a. Males.
 - b. Antennæ 2+13 jointed.
 - c. Yellowish species, dorsum of thorax and end of abdomen darker; cubitus forks distad of the middle of petiole of media. 1. *manca* n. sp.
 - cc. Fuscous species; cubitus forks proximad of middle of petiole of media. 2. *scita* n. sp.
 - bb. Antennæ 2+12 or 2+10 jointed.
 - c. Antennæ 2+12 jointed; abdomen wholly fuscous. 3. *volucris*.
 - cc. Antennæ 2+10 jointed.
 - d. Humeri yellow; hypopygium as figured (Fig. 118); eastern species. 4. *recens* n. sp.
 - dd. Humeri dusky; hypopygium as figured (Fig. 119); western species. 5. *neglecta* n. sp.
- aa. Females; antennæ 2+9 and 2+10 jointed.
 - b. Antennæ 2+10 jointed; thorax and abdomen fuscous. 3. *volucris*.
 - bb. Antennæ 2+9 jointed.
 - c. Cubitus forks about opposite proximal end of the crossvein; thorax and abdomen shining dark reddish brown. 6. *C. sp.*
 - cc. Cubitus forks at or distad of middle of petiole of the media.
 - d. Wing over 5.5 times as long as the fore tibia. 7. *C. sp.*
 - dd. Wing less than 5 times as long as the fore tibia.

e. Cubitus forks about opposite middle of petiole of media.

I. *manca* n. sp.

ee. Cubitus fork distad of middle of petiole of media.

4. *recens* n. sp.

1. *Cordyla manca* n. sp.

Male and female. Length 3 mm. Head and antennæ brown, base of the latter and last 2 joints of palpi yellow, large palpal joint dark brown; antennæ of male 2+13, of female 2+9 jointed. Thorax, abdomen and legs yellow, the mesonotum more dusky with indications of 3 stripes; posterior tergites dusky yellow to brown, posterior margins yellow; tibial spurs and tarsi brown; setæ black; hypopygium small (Fig. 115). Wings grayish hyaline, costal cell brown (Fig. 224). Halteres yellow. Ithaca, N. Y.

2. *Cordyla scita* n. sp.

Male. Length 2.5 mm. Fuscous; last 2 joints of palpi, coxæ, femora, tibiæ and halteres yellow; wings grayish hyaline, costa cell dusky yellow (Fig. 225); tibial spurs and tarsi brown. Antennæ 2+13 jointed; hypopygium small (Fig. 116). Friday Harbor, Washington (J.M.A.), July.

3. *Cordyla volucris* Johannsen.

Genera Insectorum; Fasc. 93. 101. 1909.

Male and female. Length 2.5 mm. Fuscous; base of each antenna, last 2 palpal joints, coxæ, femora, tibiæ and halteres yellow; wings grayish hyaline, costal cell more grayish (Fig. 226); tibial spurs and tarsi brown. Antennæ of male 2+12, of female 2+10 jointed; hypopygium small (Fig. 20, pl. 7 Genera Insectorum, Fasc. 93). (Fig. 117). Bred from larvæ found in fungi. Ithaca, N. Y., Sept.

4. *Cordyla recens* n. sp.

Male and female. Length 2.5 mm. Fuscous; base of antennæ, last 2 palpal joints, humeri, ventral segments 2, 3 and part of 4 of abdomen, coxæ, femora except tip of hind pair, tibiæ and halteres yellow; tibial spurs and tarsi brown; wings grayish hyaline, costal cell dusky yellow to grayish (Fig. 227). Antennæ of male 2+10, of female 2+9 jointed; hypopygium small (Fig. 118). Ithaca and Caroline, N. Y., June, July.

5. *Cordyla neglecta* n. sp.

Male. Length 2.5 mm. Coloring as in the foregoing (*C. recens*) but humeri only indistinctly yellow; venation and hypopygium as figured (Figs. 228, 119). Antennæ 2+10 jointed. Felton, Cal. (J.C.B.) May. A defective female specimen from Los Angeles, Cal., may belong here also.

6. *Cordyla* sp.

Female. Length 3 mm. Fuscous; the base of the antennæ, last 2 palpi joints, coxæ, femora, tibiæ and halteres yellow; tibial spurs and tarsi brown; venter and incisures dusky yellow; wings grayish hyaline, costal cell dusky yellow. Antennæ 2+9 jointed. Dubois, Wyo., 7000 ft. (W.M.W.), Sept.

7. *Cordyla* sp.

Female. Like *C. volucris* but antennæ 2+9 jointed. Orono, Me.; Washington, D. C. October and December. The Maine specimen was bred from a fungus (*Collybia* sp?).

21. Genus *Brachypeza* Winnertz. E

Verh. Zool.-bot. Ges. Wien. XIII. 806. 1863.

Front broad, ocelli 3, laterals contiguous to eye margin, the middle one small; second palpal joint slightly swollen, the antennæ rather short, the flagellar joints closely sessile, annular. Abdomen constricted at the base, compressed; hypopygium of the male small. Legs stout, femora all broad, flattened; tibiæ strong, somewhat enlarged at the ends, with long spurs and moderately long lateral setæ; posterior basal seta of hind coxa present. Subcosta short, ending in R_1 ; costa not produced beyond R_s ; the fork of the media under or proximad of the base of R_s ; fork of cubitus far proximad of the proximal end of the crossvein; anal fold strong, anal vein short and delicate (Fig. 229).

Brachypeza bisignata Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 807. 1863.

Male. Length 5 mm. Robust. Antennæ shorter than the thorax, brown, 2 or 3 basal joints yellow; palpi, proboscis and face yellow, front and vertex dark brown, pruinose; with yel-

low hairs. Mesonotum with 3 wide blackish vittæ; the laterals abbreviated anteriorly, the middle one wedge shaped; hairs yellow; lateral and scutellar setæ strong, black; pleura yellow or brownish yellow, metanotum brown. Abdomen with blackish hair; first segment brown with yellow posterior margin, segments, 2, 3, 4 yellow, 5 and 6 brown; hypopygium brown, small. Coxæ, femora and tibiæ yellow, the apices of the hind femora, and of hind tibiæ and of all the tarsi brown; setæ of coxæ and tibiæ black. Each wing with a spot on the disk and another at the apex of Rs. Halteres yellow.

Female. Described by Lundström ('07 and '09). Abdomen wholly yellow except the first and sometimes a part of the sixth is brown.

Var. *divergens* n. var.

Male. Differs from Winnertz's description as follows: Front between middle ocellus and the base of the antennæ yellow; tips of trochanters, of middle femora and of middle tibiæ black; abdomen with a narrow black median dorsal stripe, 6 or 8 subconfluent black spots on sides of segments 2, 3, 4, and the greater part of sides of 5 and 6 except narrow posterior margin, black. Wing spots somewhat larger than in the European form. Hypopygium and wing as figured (Figs. 120, 229). The spurs are about 3-4 as long as the corresponding metatarsi; the hind femur is about 1-4 as wide as long; the hind tibia about 1-8 as wide as long. A single specimen was bred from a fungus (*Collybia* sp.?), Nov. 2, Orono, Me.; male and female specimens from St. Johnsbury, Vt., and Hanover, N. H., (C.W.J.), June, July.

22. *Rhymosia* Winnertz. ✓ E

Verh. Zool.-bot. Ges. Wien. XIII. 810. 1863.

Head oval, front broad; ocelli 3, laterals large, closely contiguous to the eye margin, the middle one minute, placed in a groove on the front, sometimes almost concealed. Legs long and slender; lateral setæ of tibiæ delicate and little if any longer than the diameter of the tibiæ at the widest part. Posterior basal setæ of hind coxæ present. Costa meets the radial sector before the tip of the wing; subcosta very short, ending free or in R; fork of media proximad or under base of Rs; cubitus

usually forks under or proximad of the proximal end of the R-M crossvein, its elongate fork narrow at the base then suddenly divergent; anal vein very stout, rather long though not reaching wing margin; last anal long, incomplete, slender (Fig. 233). Larvæ live in fungi (*Armillaria*, etc.).

The elongate fork of the cubitus with its divergent branches, and the strong anal vein will distinguish this genus from its nearest relatives.

Table of species.

- a. Cubitus forks nearly under the proximal end of the crossvein; fore metatarsus little if any longer than the tibia; anal vein ends distad of the fork of the cubitus; female. 1. *Sp. a.*
- aa. Cubitus forks proximad of the proximal end of the crossvein.
 - b. Fore tibia and metatarsus subequal in length; anal vein slender, produced slightly beyond the fork of the cubitus; subcosta ends in R_1 ; female. 2. *Sp. b.*
 - bb. Fore tibia shorter than metatarsus, or otherwise distinct.
 - c. Third and fourth tarsal joints of the male with a series of curved spines below; fore metatarsus 1.6 times the tibia in length; anal vein produced beyond fork of the cubitus; hypopygium small (Fig. 121). 3. *serripes* n. sp.
 - cc. Tarsal joints without curved spines in the male.
 - d. Anal vein ends distad of the base of the fork of the cubitus.
 - e. Petiole of media shorter than the crossvein.
 - f. Head and thorax largely fuscous, hypopygium of male much longer than the last visible abdominal segment. 4. *inflata* n. sp.
 - ff. Head and thorax largely yellowish; hypopygium shorter than last abdominal segment. 5. *flipes*
 - ee. Petiole of media and crossvein subequal in length; hypopygium small (Fig. 123). 6. *imitator* n. sp.
 - dd. Anal vein ends at or proximad of the base of the fork of the cubitus.
 - e. Two basal setæ on each hind coxa. 7. *akeleyi* n. sp.
 - ee. One basal seta on hind coxa.
 - f. Fore tarsi about 3.5 times fore tibia in length in the male; 4 scutellar setæ. 8. *captiosa* n. sp.
 - ff. Fore tarsi about 3 times fore tibia in length in the male; 2 scutellar setæ. (Calif.) 9. *diffissa* n. sp.

Note. *Mycetophila plebeja* Walker and *M. sericea* Say. may belong here.

1. *Rhymosia* sp. a.

Female. Length 3 mm. Head and thorax fuscous, the scape, palpi, humeral spot and thoracic hairs yellow. Abdomen fus-

cous, the venter largely yellowish. Coxæ and legs yellow, tarsi and tibial spurs brown. Two scutellar setæ, one basal hind coxal seta. Wings yellowish hyaline, subcosta short, ending free (Fig. 230). Halteres yellow. Los Angeles Co., Cal., Feb. (W.M.W.)

2. *Rhymosia* sp. b.

Female. Length 4.5 mm. Head fuscous, the scape, basal joints of flagellum, and palpi yellow. Thorax yellow, the dorsum of the mesonotum, the lower margin of the pleura, the scutellum except the margin, and the metanotum, fuscous; hairs yellow, of the dorsum dense, depressed, brownish; 4 scutellar setæ. Tergites of abdomen fuscous, sternites yellow. Coxæ and legs yellow, tarsi and tibial spurs brown; one basal hind coxal seta. Wing yellowish hyaline, subcosta ends in R_1 (Fig. 231). Halteres yellow. Selkirk Mts., B. C. (J.C.B.).

3. *Rhymosia serripes* n. sp.

Male. Length 3 mm. Head fuscous, the scape and palpi yellow; antennæ half longer than the thorax. Thorax yellow, the 3 stripes of the mesonotum, the scutellum and metanotum fuscous; hairs yellow, those of the mesonotum darker, setæ black; 2 scutellar setæ. Dorsum of abdomen brownish, venter yellow; hypopygium yellow, small (Fig. 121). Coxæ and legs yellow, tarsi and tibial spurs brown; one posterior basal hind coxal seta; third and fourth fore tarsal joints each with 7 or 8 short, stout, curved, claw-like spines, those of the third joint situated distad of the middle and more blunt. Wing yellowish hyaline, subcosta short, ends free (Fig. 232). Halteres yellow. Ithaca, N. Y. Aug.

4. *Rhymosia inflata* n. sp.

Male. Length 5 mm. Head fuscous; antennæ less than twice as long as the thorax, fuscous, the immediate base of the flagellum, the scape, and the palpi yellowish. Setæ of thorax and the 2 of the scutellum black; the hairs appressed, silvery. Mesonotum with 3, sometimes wholly confluent fuscous stripes, the disk of the scutellum, metanotum and the pleura in large part fuscous. Abdomen yellow, the first segment, the last segment in large part, the dorsum of each intermediate segment,

the tip of the large hypopygium (Fig. 122), and sometimes an interrupted longitudinal ventral line, fuscous. Coxæ and legs yellow, tarsi and tibial spurs brown; usually 2 posterior basal hind coxal setæ. Wing yellowish hyaline, subcosta ends free (Fig. 233). Halteres yellow.

Female. Like the male, but the exposed part of the ovipositor when retracted is slightly shorter than the last abdominal segment and there is usually but one basal hind coxal seta.

Ithaca, N. Y. Oct.-Nov. Bred from *Armillaria mellea*.

5. *Rhymosia filipes* Loew.

Berl. Ent. Zeitschr. XIII. 149. 1869.

Length 5.5 mm., wing 4.3 mm. Opaque ochraceous testaceous. Head similarly colored, antennæ long, slender, fuscous, the scape, the immediate base of the flagellum, and the palpi yellowish. Setæ of thorax and scutellum black. The first and last abdominal segments and a dilated posterior fascia on each of the intermediate tergites, fuscous. Hypopygium yellow, a little shorter than the last abdominal segment, black pilose. Coxæ dusky yellow, with short black setæ. Legs slender, long, dusky yellow, tibiæ more subfuscous, tibial spurs and tarsi blackish. Wing cinereous yellow, more dusky yellow toward the costal margin. "Connecticut."

In the type specimen the petiole of the media is about half as long as the R-M crossvein, and the fork of the cubitus is far proximad of the proximal end of the crossvein.

6. *Rhymosia imitator* n. sp.

Male and female. Length 4.5 mm. Resembles *R. inflata* (4) in coloring, but the brown of the abdomen is more extended, each intermediate sclerite having the yellow confined to the anterior 1-2 of the sides. The 2 scutellar setæ and one posterior basal hind coxal seta, black. Wings yellowish hyaline, subcosta ends free (Fig. 234). Halteres yellow. Hypopygium (Fig. 123) small. Black Rock Creek, Wyo., Sept.; Austin, Texas (W.M.W.) June; San Pablo, Cal. (J.C.B.) Nov.

7. *Rhymosia akeleyi* n. sp.

Akeleyi Wheeler, MS.

Male. Length 4.5 mm. Resembles *R. inflata* (4) in coloring, but the face, the pleura except the lower margin in part

and the wide margin of the scutellum yellow. Abdomen yellow, the dorsum of each sclerite except narrow hind margin, the entire last segment, and the tip of the large hypopygium (Fig. 124) black. Two scutellar and 2 posterior basal hind coxal setæ. Legs colored as in *inflata*. Wing yellowish gray hyaline, subcosta ends in R_1 (Fig. 235). Halteres yellow. Wis. (W.M.W.) and Cornish, N. H. (C.W.J.) July.

8. *Rhymosia captiosa* n. sp.

Male. Length 5.5 mm. Head fuscous, face, palpi, scape and base of flagellum yellow; antennæ about a third longer than the thorax. Thorax yellow, the dorsum of mesothorax, the disk of the scutellum, the center of the metathorax, and the lower margin of the pleura, fuscous. The hairs of the head and thorax appressed, pale, the setæ black; 4 prominent scutellar setæ. Abdomen yellow, the dorsum of each of the first four segments brown except toward the posterior margin, the whole of the fifth and sixth brown; hypopygium large, about as long as the last two abdominal segments taken together; yellow, tipped with black. (Fig. 125). Coxæ and legs yellowish, tarsi and tibial spurs brown. Wings yellowish gray hyaline, subcosta ends in R_1 (Fig. 236). Brattleboro, Vt., and N. H. (C.W.J.).

Female. Like the male in coloring except that the fifth and sixth abdominal segments are marked like those preceding. Hanover, N. H.; Brattleboro, Vt.; and North Adams, Mass. (C.W.J.). June and July.

9. *Rhymosia diffissa* n. sp.

Male. Length 4.5 mm. Head fuscous, face dusky yellow, palpi and scape yellow; antennæ over twice as long as the thorax. Thorax fuscous, the humeri and a narrow line to the base of the wing yellow, hairs appressed, pale, setæ black, 2 scutellar setæ. First and last segment of the abdomen largely black, the intermediate segments yellow, each with a very large triangular saddle which nearly reaches the posterior margin, broadest anteriorly where it nearly reaches the sternite; hairs dusky; hypopygium large, yellow, tipped with black (Fig. 126). Coxæ and legs yellowish, tarsi and tibial spurs brown. Wings yellowish gray hyaline, subcosta ends in R_1 (Fig. 237). Hal-

teres yellow. Stanford Univ., Cal., Feb.; Mt. Constitution, Orcas, Id. (J.M.A.) July.

23. *Allodia* Winnertz. E

Verh. Zool.-bot. Ges. Wien. XIII. 826. 1863.

Brachycampta, Winnertz, ibidem. 833. 1863.

Lateral ocelli contiguous to the eye margin, the middle one very minute, in a groove, or wanting. Scutellum large, with 2 to 8 marginal setæ. Legs slender, hind coxæ with 1 to 3 posterior basal setæ. Costa ends at the tip of Rs; subcosta short, ending free or in R₁; petiole of media short; cubitus forks proximad of the fork of the media, and often even proximad of the base of the petiole of the media; first anal delicate, short, incomplete (*Allodia* Winnertz) or entirely wanting (*Brachycampta* Winnertz), second anal delicate and incomplete.

As both the structure of the anal vein and the position of the fork of the cubitus are slightly variable even within a species these characters cannot be used to distinguish the two Winnertzian genera.

Table of species.

- a. Hind coxæ each with a vertical black dash near the apex on outer side; under side of hind femora each with a brown mark; 6 scutellar setæ. 1. *crassicornis* and varieties. ✓
- aa. Not so marked.
- b. Fore metatarsus equal or longer than the tibia and at least 1-4 of its length longer than the coxa.
- c. Four scutellar bristles, 2 hind coxal setæ, fore metatarsus nearly twice as long as the fore coxa. 2. *bulbosa* n. sp.
- cc. With 2 scutellar bristles, or otherwise different.
- d. Cubitus forks proximad of the proximal end of the cross-vein.
- e. Pleura fuscous; anal vein moderately strong (Fig. 237); length 4.5 mm; western species; page 313. *Rhymosia diffissa* n. sp.
- cc. With other characters.
- f. Claspers as figured (Fig. 130); eastern species. 3. *actuaria* n. sp.
- ff. Claspers otherwise; Wyoming species. 4. *Allodia* sp.
- dd. Cubitus forks under or distad of the proximal end of the crossvein; end of clasper broadly truncate. 5. *falcata* n. sp.

bb. Fore metatarsus shorter than the tibia and not 1-10 longer than fore coxa.

c. Scutellum with 4 marginal setæ.

d. Cubitus forks proximad of the proximal end of the R-M crossvein.

e. Superior and inferior forceps lanceolate. (Fig. 132); a row of 4 to 6 setæ over the fore coxa; Mass.

6. *elata* n. sp.

ee. One pair of forceps curved; (Fig. 133); lower margin of trochanter with 2 setæ; B. C.

7. *bella* n. sp.

dd. Cubitus forks distad of proximal end of crossvein; female.

8. *Allodia* sp.

cc. Scutellum with 2 marginal setæ.

d. Cubitus forks at least slightly proximad of proximal end of crossvein; or if directly under, then thorax largely yellow.

e. Yellowish species.

f. One pair of forceps clavate, much longer than the other pair (Fig. 134); N. Y.

9. *beata* n. sp.

ff. Both pairs of forceps more or less elongate (Fig. 135); Western species.

10. *callida* n. sp.

ee. Dusky species; fore metatarsus less than .8 as long as the tibia; female. Western species.

11. *Allodia* sp.

dd. Cubitus forks under or distad of base of the crossvein; thorax mainly brown or fuscous.

12. *delita* n. sp.

Allodia (Brachycampta) *unicolor* Lundb. from Greenland is omitted from the above table. Its thorax and abdomen are uniformly brown; fork of the cubitus is retracted and the fore metatarsus is shorter than the tibia.

The species *despecta*, *nubila*, *obscura*, *plebeja*, and *sericea* described under *Mycetophila* may possibly belong to this genus.

1. *Allodia crassicornis* Stannius. ✓

Observ. de *Mycetophila*. 22. 1831.

Male. Length 4 to 5 mm. Face and mouth parts yellowish; head brownish; antennæ as long as head and thorax united, brown, basal joints yellow. Thorax brown to yellowish, mesonotum with 3 broad blackish stripes which may be wholly confluent; hairs yellowish gray, appressed, setæ at the sides and the 6 upon the scutellum, black; pleura brown to yellowish. The first abdominal segment fuscous with yellow hind margin, the second, third and fourth yellow, each with a large quadrangular fuscous spot, or sometimes only with rather smaller triangular spot, fifth and sixth fuscous usually with yellow posterior margins; hypopygium yellow. Coxæ yellow, hairs

yellow, setæ at tip of fore pair black; posterior pair with vertical black dash at tip on outer side, and with 2 posterior basal setæ, trochanters each with black spot below; femora yellow with brown spot on the under side of each, and brown spot at apex; tibiæ pale brown, spurs and tarsi brown, fore tibia about 1-16 shorter than the metatarsus. Wing yellowish tinged, media forks at or slightly distad of the base of Rs, cubitus forks distad of the proximal end of the crossvein; anal furrow delicate ending before the base of the fork of the cubitus; anal vein stronger and longer; halteres yellow.

Female. Antennæ shorter than head and thorax united, conical, 5 basal joints of flagellum swollen, twice as wide as long, fuscous, with yellowish basal joints. Abdomen fuscous, segments with yellow posterior margins and venter. "Europe, N. A., Pa., N. J." *101*

Fig. 238
Var. a. Male and female. With vertical black dash upon middle coxa also but no brown spot under fore femora; hypopygium as figured (Fig. 127), cubitus forks at or very slightly proximad of the proximal end of the crossvein; otherwise like the foregoing. Burlington, Vt. (C.W.J.); Ithaca, N. Y. May-July.

Var. b. Female. Like var. a but with cylindrical antennæ. Burlington, Vt. (C.W.J.). June, July.

Var. c. Male. Like var. a but with less yellow upon thorax and abdomen, and with fore metatarsus 1-16 shorter than the tibia. Ithaca, N. Y.

Var. d. Female. Like var. c with conical antennæ but with fore metatarsus about .2 shorter than the tibia. Torrey's Lake, Wyoming, (W.M.W.). September.

2. *Allodia bulbosa* n. sp.

Male. Length 4.5 mm. Yellow; apical half of antennæ, the 3 thoracic stripes, center of scutellum, the lower margin of the metapleura, the metanotum light brown, the anterior 2-3 of each tergite of abdomen, a spot at tip of each hind femur, the tibial spurs and tarsi darker brown; hairs pale, setæ black; hypopygium small, yellow (Fig. 129). Hind coxæ each with 2 posterior basal setæ; fore metatarsus 1.38 times the tibia in length. Wings tinged with yellow, subcosta curved down but not ending in R₁ (Fig. 239); anal furrow strong, anal vein

weak. N. H.; Ithaca, N. Y. (June); Forest Hill, N. J., (Weidt).

3. *Allodia actuaria* n. sp.

Male. Length 2.5 mm. Head fuscous, palpi and scape yellow. Thorax yellow, the center of the mesonotum, the scutellum, metanotum and margin of the metapleura dark brown, hairs pale, setæ black; 2 scutellar setæ. Abdomen yellow, posterior 2-3 of the first 4 dorsally, and the whole of the fifth segment dark brown; hypopygium yellow (Fig. 130). Coxæ and legs yellow, tibial spurs and tarsi brown; fore metatarsus about 1-8 longer than the tibia. Wings hyaline, yellow tinged, fork of cubitus retracted, anal vein indistinct (Fig. 240). Halteres yellow. Ithaca, N. Y. (Aug.)

Female. A single female specimen from Woods Hole, Mass., (C.W.J.) has wholly yellow pleura, and the mesonotum with 2 indistinct brown stripes which meet in front of the dark scutellum.

4. *Allodia* sp.

Male. Length 3 mm. Similar to the foregoing in coloring but the brown on the mesonotum is more extended, and the hypopygium differs. Fore metatarsus about .2 longer than the tibia. Wings hyaline, yellow tinged, fork of cubitus retracted far proximad of the base of the petiole of the media. A single specimen from Buck Creek, Wyo. (W.M.W.) Aug.

5. *Allodia falcata* n. sp. *Fig. 146, Pl. IV.*

Male. Length 3.5 mm. Fuscous; the palpi, scape, the apical 1-3 or 1-4 of the intermediate ventral sclerites of the abdomen, the hypopygium, coxæ, tibiæ and halteres yellow, tibial spurs and tarsi brownish; wings yellowish hyaline. Antennæ about 1.5 times as long as the head and thorax united. Hairs of body pale, setæ black; 2 setæ on scutellum; hypopygium longer than the sixth abdominal segment (Fig. 131); fore metatarsus and tibia subequal. Subcosta bent towards but not reaching R₁; cubitus forks about opposite or slightly distad of the proximal end of the crossvein.

Female. Yellow of abdomen more extended, and humeri sometimes also yellow. Cape May, N. J. and Ithaca, N. Y. (Sept.).

Var. a. Male and female. Length 3 mm. Humeri, pleura largely, venter and sides of the second to fifth abdominal segments, and sometimes hind margins of dorsal sclerites also, yellow. Prince Co. Wis., Chicago, Ill., (W.M.W.), Longmire's Springs, Wash. (J.M.A.) May to Aug.

6. *Allodia elata* n. sp. *Fig. 147, h. r. IV*

Male. Length 2.5 mm. Head dusky yellow; basal joints of antennæ, palpi, and face yellow, apical half of antennæ subfuscous, hairs pale. Thorax yellow, scutellum, metanotum and 2 narrow converging stripes on mesonotum, brown; hairs pale, setæ black; 4 marginal setæ on scutellum. Abdomen yellow, a longitudinal dorsal stripe and the greater part of the fifth and sixth segments, dark brown; hypopygium (Fig. 132) yellow. A row of 4 to 6 fine blackish setæ just over the base of the fore coxæ. Coxæ and legs yellow, tibial spurs and tarsi brown; fore metatarsus about 7-8 of tibia in length; one posterior basal hind coxal seta. Wings yellowish hyaline; subcosta curved toward but not reaching R_1 , cubitus forks proximad of the proximal end of the crossvein. Halteres yellow. Fall River, Mass., (N. S. Easton) May.

Female. One specimen from Hampton, N. H. (S. A. Shaw) differs in being paler, abdominal markings pale brown, setæ over fore coxæ paler.

Var. a. Female. Mesonotum subfuscous, tergites fuscous except hind margins. Blue Hills, Mass. (C.W.J.) July. One specimen.

Var. b. Female. Head, flagellum, thorax and abdomen fuscous, venter and narrow hind margins of tergites yellow. St. Johnsbury, Vt. (C.W.J.) June. One specimen. Var. a and b may possibly be distinct species.

7. *Allodia bella* n. sp. *Fig. 148, h. r. IV*

Male. Length 2.5 mm. Head and antennæ brown; face, palpi, scape and base of flagellum yellow; antennæ about 1-4 longer than the head and thorax united. Thorax reddish yellow, mesonotum with 3 brown stripes more or less confluent; scutellum reddish, with 4 setæ, metanotum and margin of metapleura, brown; 2 setæ over the base of the fore coxæ. Abdomen dark brown, the venter of the first 4 segments yellow;

hypopygium (Fig. 133), yellow. Coxæ and legs yellow, tibial spurs and tarsi brown; fore metatarsus slightly shorter than the tibia. Wings yellowish hyaline; subcosta bends toward but apparently does not reach R₁; cubitus forks slightly proximad of the proximal end of the crossvein. Halteres yellow. Downie Creek, Selkirk Mts., B. C. (J.C.B.) August.

A defective specimen from Stanford Univ., Calif. (J.M.A.) taken in February may belong here.

8. *Allodia* sp.

Female. Length 3 mm. Brown; the scape, palpi, coxæ, femora, tibiæ, venter of intermediate segments in large part, ovipositor, and halteres yellow. Antennæ shorter than the thorax; fore metatarsus shorter than the tibia; cubitus forks distad of the proximal end of the crossvein. Dubois, Wyo. (W.M.W.) Sept.

9. *Allodia beata* n. sp. *Fig. 148, Pl. 10*

Male and female. Length 3 mm. Head brown, basal joints of antennæ, and palpi yellow; antennæ about 1.5 times as long as the head. Thorax dusky yellow, 3 more or less confluent stripes of the mesonotum, scutellum and metanotum dark brown; scutellum with 2 marginal setæ. The tergites of the abdomen brown, the venter yellow; hypopygium (Fig. 134) yellow. (See also Pl. 7, fig. 14, Genera Insectorum, Fasc. 93). Coxæ and legs yellow, the tibial spurs, the tarsi and the extreme tips of the hind femora brown, fore metatarsus shorter than tibia. Wings yellowish hyaline; cubitus forks proximad of the proximal end of the crossvein. Halteres yellow. Ellis, and Ithaca, N. Y.

In some specimens the thoracic marks are obsolete and the abdomen is also much paler. In one the fifth and sixth segments are dark brown.

10. *Allodia callida* n. sp. *Fig. 150, Pl. 11*

Male. Length 3 mm. Similar to the preceding but fifth and sixth abdominal segments are dark brown. Leg proportions also similar. Cubitus forks under the proximal end of the crossvein. Hypopygium with both pairs of forceps more or less lanceolate (Fig. 135). Keyport, Wash. (J.M.A.) Aug.; Littlewind River, Wyo. Sept.

II. *Allodia* sp.

Female. Length 3.5 mm. Fuscous; scape, palpi, spot below humerus, hind margins of the posterior tergites and the venter especially toward the tip, coxæ, tibia, and halteres yellow. Antennæ slightly enlarged at the base, about as long as head and thorax. Fore metatarsus about .8 as long as the tibia. Cubitus forks proximad of base of crossvein. Mt. Constitution, Orcas, Id., Wash. (J.M.A.) July.

12. *Allodia delita* n. sp. *Fig 151, 152 IV*

Male. Length 3.5 mm. Fuscous, scape, palpi, humeri, anterior part of the venter, coxæ, femora, tibiæ, and halteres yellow. Antennæ more than half again as long as the head and thorax united. Scutellum with 2 marginal setæ; setæ over fore coxæ blackish. Fore metatarsus slightly shorter than the tibia. Wing yellowish hyaline; subcosta curved toward but does not reach R_1 ; cubitus forks about opposite the fork of the media. Hypopygium large (Fig. 136). Mt. Constitution, Orcas, Id.; Wash. (J.M.A.) July.

Female. A specimen from Berkeley, Calif. (W.M.W.) has dark humeri, pale brown hairs over fore coxæ, and shorter antennæ.

Var. a. Male. Length 3 mm. Like the foregoing in coloring and structure but the setæ above the fore coxæ are pale brown and the hypopygium differs slightly. Wis. (W.M.W.). This may possibly be a distinct species.

Addenda.

Dr. H. Dziedzicki of Warsaw, Russia, recently informed me that the hypopygium of *Platyura diluta* Lw. is identical with that of *P. unicolor* Winn., and that of *P. subterminalis* is like that of *P. infusca* Winn. As the last two also resemble each other in other particulars they may be identical. *Platyura parva* belongs to Enderlein's new genus *Paraplatyura*, R_{2+3} ending in R_1 .

Prof. T. D. A. Cockerell called my attention to an error in Part II (p. 131). *Tetragoneura peritula* should have been recorded from near Rifle, Colorado, an Eocene locality.

On page 136 in the description the hypopygium of *S. galbana* for *inferior* read *superior*, for *dorsal* read *ventral*, and vice versa. Similar corrections must be made under explanation of figure 122, page 192. For *glabana* read *galbana*. (Part II).

In the tables of leg measures on pages 323-325 the letters *ct* or *t* following a name signify that the measurements were made upon the cotype or the type specimen.

Since the publication of my previous papers on the *Mycetophilidae* in Bulletins 172 and 180 of this Station and in *Genera Insectorum*, Fasc. 93 there have appeared two papers by Dr. Enderlein (*Trans. Linn. Soc. London*, 1910, and *Stettin Ent. Zeit.* 1911) on this family of flies in which some additional genera have been proposed. As some of these genera occur in America it is desirable to give a brief synopsis of each with such differential characters as may be necessary to distinguish them from the older genera as characterized in the synoptic tables published in the previous papers of this series and in *Genera Insectorum*.

Mycetobiinae.

Mesochria is related to *Mycetobia* but differs in having contiguous eyes, and a coalescence of the tips R_1 and R_{2+3} . *Scotella* I consider a *Sciophilina*. See below.

Ceroplastinae.

Placcoceratias differs from *Ceratelion* in possessing but 2 ocelli. In *Paraplatyura* R_{2+3} ends in R_1 in this respect differing from *Platyura*. *P. parva* from the St. Vincent Isl. should be placed here.

Sciophilinae.

Ectrepesthoneura was erected to contain *Tetragoneura hirta*. In this genus the subcosta ends in R₁ and the petiole of the cubitus is very short, thus distinguishing it from *Tetragoneura*. *Scotella* was referred to the *Mycetobiinae* by Dr. Enderlein but I am inclined to interpret the homology of the wing veins differently. In the figure given by him (Tran. Linn. Soc. p. 61) the veins marked cu and ax I consider to be M and cu respectively. This genus may be separated from *Paratinia* by the elongate petiole of the radial sector, and the presence of scales on thorax and abdomen. *Pleonazoneura* and *Neurocompsa* are both related to *Neoempheria* from which they differ in having a distinct vein between R and M instead of merely a fold. The second genus is distinguished further in having an accessory crossvein.

Mycetophilinae.

Aphanizophleps is an aberrant form with defective venation probably related to the *Sciarinae*, resembling *Manota* from which it is distinguished by the position of the lateral ocelli close to the eye margin. *Leiella* closely resembles *Rondaniella*, but it has only 2 ocelli, and the basal section of Rs is lacking. *Megalopelma*, a genus split off from *Phthinia*, differs in having the subcostal crossvein placed distad of the base of Rs. The American species *P. fraudulenta* no doubt belongs here. *Platurocypta* has but 2 ocelli, and a depressed instead of a compressed abdomen, differing in these respects from *Epicypta*. *Plastacephala* may be distinguished from *Mycetophila* by the form of the abdomen which is depressed instead of compressed. *Platyprosthogyne* resembles *Zygomyia* but it has its costa produced, the ocelli but 2 in number, and a depressed abdomen.

LEG MEASUREMENTS.

These tables give the relative measurements of the joints of the legs, the fore tibia (T) being taken as 100.

| NAME. | Fore Leg. | | | | | Middle Leg. | | | | | Hind Leg. | | | | |
|---|-----------|-----|-----|----|----|-------------|----|-----|-----|-----|-----------|----|----|-----|--|
| | F | T | 1 | 2 | 3 | 4 | 5 | F | T | 1 | 2 | 3 | 4 | 5 | |
| (<i>Gnoriste megarhina</i> , male..... | 80 | 100 | 89 | 51 | 29 | 18 | 11 | 90 | 132 | 102 | 52 | 31 | 18 | 13 | |
| (<i>Gnoriste megarhina</i> , female..... | 83 | 100 | 88 | 49 | 29 | 17 | — | 90 | 132 | 97 | 44 | 34 | — | 105 | |
| <i>Acanesia flavicornis</i> , male, t..... | — | 100 | 84 | 44 | 35 | 21 | 16 | 98 | 150 | 84 | 49 | 32 | 21 | 118 | |
| <i>Acanesia flavicornis</i> , female..... | 106 | 100 | 85 | 44 | 35 | 25 | 21 | 118 | 118 | 76 | 38 | 27 | 21 | 161 | |
| <i>Acanesia psylla</i> , male..... | 106 | 100 | 90 | 52 | 35 | 23 | 19 | 132 | 142 | 100 | 42 | 40 | 19 | 158 | |
| <i>Rondaniella abbreviata</i> , male..... | 118 | 100 | 71 | 41 | 32 | 22 | 19 | 148 | 159 | 100 | 48 | 40 | 26 | 20 | |
| <i>Neuriteella silvatica</i> , male, t..... | 81 | 100 | 144 | 71 | 53 | 28 | 19 | — | — | — | — | — | — | 125 | |
| <i>Neuriteella setula</i> , male, t..... | 78 | 100 | 143 | 71 | 50 | — | — | — | — | — | — | — | — | 112 | |
| <i>Neuriteella emmatus</i> , female, t..... | 95 | 100 | 95 | 55 | 42 | 27 | 18 | 90 | 118 | 87 | 53 | 32 | 21 | 136 | |
| <i>Neuriteella destituta</i> , female, t..... | 93 | 100 | 104 | — | — | — | — | 93 | 132 | 108 | 54 | 40 | 24 | 161 | |
| <i>Leptomorphus xyston</i> , female, t..... | 85 | 100 | 102 | 67 | 45 | 25 | 16 | 97 | 127 | 101 | 60 | 36 | 24 | 131 | |
| <i>Leptomorphus xyston</i> , male, t..... | 73 | 100 | 163 | 75 | 61 | 42 | 25 | 85 | 146 | 131 | 62 | 49 | 29 | 120 | |
| <i>Phthiria tanyus</i> , female..... | 73 | 100 | 238 | 88 | 46 | 23 | 15 | 85 | 143 | 203 | 88 | 38 | — | 124 | |
| <i>Phthiria tanyus</i> , male..... | 82 | 100 | 235 | 95 | 52 | 30 | 17 | 82 | — | 100 | 63 | 37 | 23 | 136 | |
| <i>Phthiria curta</i> , male, t..... | 96 | 100 | 82 | 80 | 53 | 40 | 27 | — | 126 | — | — | — | — | 133 | |
| <i>Coelostia modesta</i> , male, t..... | 96 | 100 | 78 | 49 | 31 | 19 | 13 | 118 | 140 | 87 | 43 | 28 | 20 | 144 | |
| <i>Coelostia lepidula</i> , male, t..... | 78 | 100 | 75 | 48 | 33 | 22 | 13 | 131 | 156 | 100 | 45 | 33 | 22 | 150 | |
| <i>Coelostia gracilis</i> , male, t..... | 95 | 100 | 74 | 52 | 43 | 26 | 17 | 142 | 140 | 111 | 51 | 38 | 30 | 210 | |
| <i>Syntenna separata</i> , male, t..... | 102 | 100 | 85 | 61 | 51 | — | — | 137 | 159 | 96 | 46 | 33 | 25 | 200 | |
| <i>Syntenna repleta</i> , male, t..... | 100 | 100 | 72 | 46 | 35 | 27 | 21 | 137 | 159 | 96 | 46 | 33 | 25 | 200 | |
| <i>Syntenna longicornis</i> , male..... | 97 | 100 | 63 | 47 | 37 | 30 | 20 | 115 | 130 | 85 | 45 | 33 | 26 | 189 | |
| <i>Syntenna vittata</i> , var. <i>fasciata</i> , male, t..... | 113 | 100 | 67 | 52 | 47 | 31 | 22 | 131 | 131 | 100 | 47 | 36 | 25 | 172 | |
| <i>Syntenna vittata</i> ? female..... | 108 | 100 | 78 | 33 | 30 | 23 | 20 | 132 | 132 | 97 | 43 | 36 | — | 185 | |
| <i>Megophthalma occidentalis</i> , male, t..... | 103 | 100 | 56 | 33 | 30 | 23 | 20 | 135 | 131 | 83 | 45 | 36 | 28 | 167 | |
| <i>Anisela stylivorus</i> , male, t..... | 94 | 100 | 98 | 31 | 54 | 33 | 32 | 110 | 132 | 107 | 58 | 39 | 32 | 183 | |
| <i>Dooesia nigella</i> , male, t..... | 123 | 100 | 63 | 27 | 18 | 11 | 41 | 159 | 141 | 79 | 36 | 25 | 18 | 136 | |
| <i>Dooesia nitida</i> , male, t..... | 119 | 100 | 71 | 33 | 28 | 12 | 22 | 159 | 131 | 70 | 47 | 36 | 26 | 177 | |
| <i>Dooesia dichroa</i> , male..... | 119 | 100 | 57 | 19 | 16 | 12 | 19 | 148 | 126 | 78 | 31 | 24 | 19 | 166 | |
| <i>Trichonema triangularis</i> , male, var. a. t..... | 114 | 100 | 95 | 57 | 47 | 29 | 22 | 136 | 146 | 107 | 57 | 43 | — | 161 | |
| <i>Trichonema triangularis</i> , male, t..... | 106 | 100 | 88 | 53 | 39 | 27 | 25 | 131 | 140 | 97 | 49 | 38 | 28 | 200 | |

LEG MEASUREMENTS.

These tables give the relative measurements of the joints of the legs, the fore tibia (T) being taken as 100—
Continued.

| NAME. | FORE LEG. | | | | | MIDDLE LEG. | | | | | HIND LEG. | | | | |
|---|-----------|-----|-----|----|----|-------------|----|-----|-----|-----|-----------|----|----|----|----|
| | F | T | 1 | 2 | 3 | 4 | 5 | F | T | 1 | 2 | 3 | 4 | 5 | |
| | | | | | | | | | | | | | | | |
| Trichonta diffusa, male, c. t. | 125 | 103 | 78 | 44 | 30 | 22 | 18 | 136 | 130 | 86 | 40 | 30 | 22 | 19 | 19 |
| Trichonta patens, female, t. | 122 | 100 | 78 | 45 | 36 | 21 | 19 | 132 | 140 | 88 | 45 | 36 | 22 | 21 | 19 |
| Trichonta bellula, male, t. | 112 | 100 | 79 | 54 | 37 | 21 | — | 138 | 142 | 92 | 46 | 31 | 25 | 21 | 19 |
| Trichonta cincta, female, t. | 111 | 103 | 77 | — | — | — | — | 140 | 140 | 93 | 47 | 34 | 25 | 21 | 21 |
| Boletina sedula, male, t. | 90 | 100 | 85 | 52 | 28 | 18 | 16 | 107 | 153 | 97 | 43 | 27 | 18 | 15 | 13 |
| Boletina sedula, female, c. t. | 94 | 100 | 78 | 47 | 29 | 19 | 17 | 122 | 148 | 87 | 39 | 27 | 18 | 16 | 16 |
| Boletina inops, female, | 93 | 100 | 72 | 40 | 25 | 19 | 15 | 106 | 134 | 82 | 35 | 25 | 16 | 14 | 16 |
| Boletina nacta, male, t. | 90 | 100 | 90 | 61 | 47 | 27 | 20 | 114 | 145 | 100 | 58 | 40 | 23 | 20 | 16 |
| Boletina obscura, male, t. | 100 | 100 | 70 | 36 | 23 | 16 | 20 | 120 | 128 | 76 | 40 | 30 | 16 | 20 | 20 |
| Boletina imitator, male, t. | 80 | 100 | 91 | 52 | 35 | 22 | 15 | 98 | 131 | 95 | 39 | 39 | 17 | 14 | 17 |
| Boletina longicornis, male, t. | 85 | 100 | 80 | 49 | 32 | 19 | 13 | 100 | 135 | 90 | 40 | 27 | 20 | 12 | 22 |
| Boletina tricheta, male, | 108 | 100 | — | — | — | — | — | — | — | — | — | — | — | — | 15 |
| Boletina tricheta, female, | 95 | 100 | 70 | 40 | 30 | 18 | 14 | 114 | 117 | 70 | 37 | 30 | 17 | 15 | 15 |
| Boletina notescens, male, t. | 91 | 100 | 88 | 51 | 33 | 21 | 15 | 112 | 127 | 98 | 40 | 30 | 21 | 15 | 15 |
| Boletina notescens, var. a., female | 92 | 100 | 81 | 47 | 33 | 21 | 16 | 119 | 139 | 95 | 45 | 33 | 19 | 17 | 17 |
| Boletina horkinsii? female, | 98 | 103 | 67 | 35 | 27 | 17 | 19 | 118 | 130 | 82 | 40 | 31 | 20 | 18 | 17 |
| Boletina gracilis, male, t. | 87 | 100 | 80 | 54 | 38 | 24 | 17 | — | — | — | — | — | — | — | 17 |
| Boletina delicata, male, t. | 92 | 100 | 84 | 52 | 34 | — | — | 116 | 132 | 90 | 46 | 32 | 16 | 14 | 14 |
| Boletina cincta, male, t. | 93 | 100 | 62 | 45 | 38 | 24 | 21 | 117 | 114 | 80 | 41 | 28 | 21 | 17 | 17 |
| Boletina melancholica, male, t. | 100 | 100 | 76 | 42 | 18 | 15 | 14 | 132 | 132 | 83 | 41 | 28 | 15 | 15 | 17 |
| Boletina sobria, female, | 100 | 100 | 64 | 41 | 32 | 23 | 15 | 116 | 133 | 78 | 39 | 28 | 19 | 17 | 17 |
| Boletina obesa, female, t. | 97 | 100 | 70 | 34 | 25 | 17 | 15 | 116 | 133 | 78 | 39 | 28 | 19 | 17 | 17 |
| Leia nigra, male, t. | 112 | 100 | 80 | 40 | 27 | 20 | 20 | 162 | 154 | 106 | 58 | 41 | 29 | 23 | 23 |
| Leia dryas, male, t. | 112 | 100 | 104 | 57 | 43 | 27 | 23 | 163 | 160 | 106 | 50 | 37 | 27 | 20 | 20 |
| Leia plebeja, male, t. | 106 | 100 | 87 | 47 | 40 | 27 | 23 | 163 | 166 | 114 | 57 | 43 | 27 | 20 | 20 |
| Leia opima | 110 | 100 | 110 | 66 | 47 | 28 | 23 | 156 | 172 | 112 | 53 | 37 | 24 | 22 | 23 |
| Leia striata, var. a., male | 114 | 100 | 123 | 78 | 57 | 39 | 25 | 144 | 165 | 103 | 48 | 38 | 24 | 19 | 19 |
| Leia winthemi, male | 103 | 100 | 110 | 60 | 43 | 26 | 19 | 165 | 165 | 105 | 55 | 40 | 27 | 17 | 17 |
| Leia cincta, male | 120 | 100 | — | — | — | — | — | 172 | 160 | — | — | — | — | — | — |
| Leia decora, male | 118 | 100 | 84 | 49 | 47 | 30 | 24 | — | — | — | — | — | — | — | — |

LEG MEASUREMENTS.

These tables give the relative measurements of the joints of the legs, the fore tibia (T) being taken as 100—
Concluded.

| NAME. | FORE LEG. | | | | | | MIDDLE LEG. | | | | | | HIND LEG. | | | | | |
|---|-----------|-----|-----|----|----|--|-------------|-----|-----|-----|----|--|-----------|-----|-----|-----|----|----|
| | F | | | T | | | F | | | T | | | F | | | T | | |
| | 1 | 2 | 3 | 4 | 5 | | 1 | 2 | 3 | 4 | 5 | | 1 | 2 | 3 | 4 | 5 | |
| <i>Leia sublunata</i> , male..... | 112 | 100 | 53 | 26 | 20 | | 158 | 160 | 112 | 53 | 35 | | 170 | 250 | 104 | 48 | 33 | 18 |
| <i>Leia varia</i> , female..... | 98 | 100 | 40 | 32 | 22 | | 140 | 162 | 115 | 57 | 38 | | 166 | 217 | 96 | 40 | 32 | 22 |
| <i>Leia ventralis</i> , female..... | 102 | 100 | 35 | 26 | 20 | | 148 | 152 | 94 | 42 | 32 | | 184 | 220 | — | — | — | — |
| <i>Leia cuneola</i> , female..... | 120 | 100 | 50 | 35 | 25 | | 143 | 143 | 97 | 47 | 37 | | 162 | 204 | 95 | 45 | 38 | 18 |
| <i>Leia bivittata</i> , female..... | 101 | 100 | 43 | 38 | 25 | | 139 | 173 | 114 | 50 | 36 | | 191 | 246 | 107 | 41 | 34 | 27 |
| <i>Leia oblectabilis</i> , male..... | 118 | 100 | 63 | 54 | 38 | | 159 | 146 | 136 | 77 | 57 | | 191 | 191 | 136 | 59 | 45 | 36 |
| <i>Brachyneura bisignata</i> var. <i>divergens</i> , male, t..... | 114 | 100 | 84 | 68 | 47 | | 208 | 189 | 144 | 92 | 64 | | 232 | 248 | 168 | 68 | 56 | 48 |
| <i>Cordyla manca</i> , female, c. t..... | 144 | 100 | 72 | 60 | 56 | | 168 | 182 | 164 | 82 | 73 | | 227 | 236 | 164 | 68 | 59 | 36 |
| <i>Cordyla recens</i> , male..... | 137 | 100 | 73 | 61 | — | | — | — | — | — | — | | — | — | — | — | — | 27 |
| <i>Cordyla scita</i> , male, t..... | 100 | 83 | 68 | 41 | 36 | | 182 | 191 | 154 | 82 | 68 | | 218 | 236 | 154 | 63 | 59 | 36 |
| <i>Cordyla neglecta</i> , male, t..... | 151 | 100 | 91 | 63 | 46 | | 37 | 150 | 175 | 158 | 41 | | 208 | 200 | 168 | 75 | 62 | 46 |
| <i>Cordyla volucris</i> , male, c. t..... | 142 | 100 | 92 | 67 | 33 | | 37 | 166 | 150 | 124 | 75 | | 37 | 208 | 192 | 66 | 58 | 42 |
| <i>Cordyla volucris</i> , female..... | 130 | 100 | 71 | 46 | 33 | | 122 | 132 | 138 | 71 | 55 | | 29 | 152 | 188 | 142 | 62 | 45 |
| <i>Rhymosia caritosa</i> , male, t..... | 100 | 100 | 84 | 64 | 48 | | 117 | 126 | 133 | 74 | 44 | | 133 | 178 | 144 | — | — | — |
| <i>Rhymosia imitator</i> , male, t..... | 100 | 100 | 74 | 52 | 39 | | 119 | 122 | 126 | 66 | 44 | | 26 | 141 | 165 | 132 | 51 | 37 |
| <i>Rhymosia akeleyi</i> , male, c. t..... | 96 | 100 | 111 | 82 | 59 | | 119 | 122 | 133 | 70 | 50 | | 27 | 147 | 183 | 132 | 57 | 37 |
| <i>Rhymosia akeleyi</i> , male, t..... | 100 | 100 | 120 | 83 | 60 | | 126 | 140 | 133 | 70 | 50 | | 32 | 163 | 130 | 55 | 36 | 26 |
| <i>Rhymosia inflata</i> , male, t..... | 100 | 100 | 114 | 74 | 58 | | 116 | 123 | 119 | 68 | 51 | | 26 | 140 | 185 | 135 | 63 | — |
| <i>Rhymosia serripes</i> , male, t..... | 90 | 100 | 160 | 85 | 60 | | 119 | 137 | 141 | 63 | 44 | | 22 | 136 | 185 | 137 | 57 | — |
| <i>Rhymosia serripes</i> , male, t..... | 96 | 100 | 122 | 77 | 48 | | 133 | 133 | 133 | 70 | 53 | | 40 | 156 | 196 | 127 | — | — |
| <i>Alloodia diffusa</i> , male, t..... | 100 | 100 | 107 | 60 | 33 | | 102 | 124 | 124 | 59 | 48 | | 138 | 166 | 131 | 48 | 38 | 28 |
| <i>Alloodia crassicornis</i> , var. a. male..... | 90 | 100 | 133 | 77 | 40 | | — | — | — | — | — | | — | — | — | — | — | — |
| <i>Alloodia bulbosa</i> , male, t..... | 90 | 100 | 103 | 60 | 30 | | — | — | — | — | — | | — | — | — | — | — | — |
| <i>Alloodia falcata</i> , male, t..... | 86 | 100 | 109 | 72 | 57 | | — | — | — | — | — | | — | — | — | — | — | — |
| <i>Alloodia actuaris</i> , male, t..... | 100 | 100 | 100 | 72 | 57 | | — | — | — | — | — | | — | — | — | — | — | — |
| <i>Alloodia beata</i> , male, t..... | 121 | 100 | 88 | 64 | — | | — | — | — | — | — | | — | — | — | — | — | — |
| <i>Alloodia delata</i> , male, t..... | 100 | 100 | 89 | 74 | 40 | | — | — | — | — | — | | — | — | — | — | — | — |
| <i>Alloodia callida</i> , male, t..... | 100 | 100 | 91 | 64 | 36 | | 136 | 136 | 114 | 63 | 50 | | 166 | 207 | 140 | 60 | 40 | 27 |
| <i>Alloodia bella</i> , male, t..... | 106 | 100 | 87 | 73 | 53 | | 139 | 139 | 125 | — | 55 | | 166 | 195 | 134 | 61 | 45 | 33 |
| <i>Alloodia elata</i> , male, t..... | 100 | 100 | 83 | 72 | 56 | | — | — | — | — | — | | — | — | — | — | — | — |

Explanation of Plates.

Abbreviations used in the explanation of the plates of the hypopygia.

da = dorsal aspect, va = ventral aspect, ma = mesal aspect, la = lateral aspect, a = median ventral plate, s = superior forceps, i = inferior forceps.

Plate.

Hypopygia. Magnification x 60 unless otherwise noted.

98. *Leia cincta*, median ventral process; c, limb of forceps.
99. *L. decora*, la a, median sclerite, x 35.
100. *L. opima*, x 35.
101. *L. sublnata*, x 35.
102. *Phthinia curta*, x 35.
103. *Coelosia lepida*, ma of limb.
104. *C. modesta*, c and b, limbs.
105. *Syntemna rejecta*, x 35.
106. *S. vittata*, var *fasciata*, b is la of c.
107. *Anatella silvestris*, la.
108. *Docosia dichroa*, terminal appendage of lateral sclerite.
109. *D. nigella*, x 20.
110. *D. nitida*.
111. *Trichonta triangularis*, forceps limb, x 35.
112. *T. bellula*, forceps.
113. *T. diffissa*, forceps.
114. *T. patens*, forceps.
115. *Cordyla manca*, b', ma of b.
116. *C. scita*.
117. *C. volucris*, ma. Forceps.
118. *C. recens*. Forceps.
119. *C. neglecta*. Forceps.
120. *Brachypeza bisignata* var. *divergens*, latero-dorsal aspect, x 20.
121. *Rhymosia serripes*, x 35.
122. *R. inflata*, x 20.
123. *R. imitator*, x 35. Forceps.
124. *R. akeleyi*, x 35. Apex of hypopygium.
125. *R. captiosa*, x 20.
126. *R. diffissa*, b = va-la, b' = da of b, x 35. Forceps.
127. *Allodia crassicornis*, var a, x 35. Forceps.
128. *A. crassicornis*, var c, x 35. Forceps.
129. *A. bulbosa*. Forceps.
130. *A. actvaria*. Forceps.
131. *A. falcata*. Forceps.
132. *A. elata*. Forceps.
133. *A. bella*. Forceps.
134. *A. beata*, x 40. Forceps.
135. *A. callida*, x 40. Forceps.
136. *A. delita*, x 45. Forceps.

Plate.

Hypopygia. Magnification $\times 35$ unless otherwise noted.

- 137. *Gnoriste megarrhina*, da.
- 138. *G. macra*, forceps, ma.
- 139. *G. megarrhina*, forceps, ma.
- 140. *Acnemia psylla*, var. da. Forceps.
- 141. *A. psylla*, da, $\times 45$.
- 142. *Rondaniella abbreviata*.
- 143. *Neuratelia silvatica*, da, $\times 45$.
- 144. *N. scitula*, da.
- 145. *N. nemoralis*, inner appendage of s, da $\times 60$.
- 146. *Boletina obscura*.
- 147. *B. cincta*.
- 148. *B. melancholicus*, median ventral lobe, $\times 60$.
- 149. *B. melancholicus*, forceps, $\times 60$.
- 150. *B. imitator*, $\times 20$.
- 151. *B. gracilis*, forceps.
- 152. *B. longicornis*, $\times 25$.
- 153. *B. notescens*, forceps, $\times 60$.
- 154. *B. arctica*, after Rübsaamen.
- 155. *B. nacta*, apex of forceps, $\times 60$.
- 156. *B. sciarina*, forceps, after Dziedzicki.
- 157. *B. tricincta*, forceps.
- 158. *B. delicata*, va, median ventral lobe.
- 159. *B. delicata*, da, upper lateral lobe.
- 160. *B. delicata*, va, lower lateral lobe.
- 161. *B. notescens*, var. a, ovipositor.
- 162. *Leia melæna*.
- 163. *L. nigra*.
- 164. *L. winthemii*.
- 165. *L. striata*, var. a, forceps la, $\times 60$.
- 166. *L. plebeja*, forceps, la, $\times 60$.
- 167. *L. oblectabilis*, forceps, la, $\times 60$.
- 168. *L. dryas*.

Plate.

- | | |
|--------------------------------------|--------------------------------|
| 169. <i>Gnoriste megarrhina</i> . | 181. <i>B. melancholica</i> . |
| 170. <i>G. macra</i> . | 182. <i>B. imitator</i> . |
| 171. <i>Acnemia psylla</i> . | 183. <i>B. gracilis</i> . |
| 172. <i>A. flaveola</i> . | 184. <i>B. longicornis</i> . |
| 173. <i>Rondaniella abbreviata</i> . | 185. <i>B. notescens</i> . |
| 174. <i>Neuratelia silvatica</i> . | 186. <i>B. sobria</i> . |
| 175. <i>N. eminens</i> . | 187. <i>B. tricincta</i> . |
| 176. <i>N. nemoralis</i> . | 188. <i>B. delicata</i> . |
| 177. <i>Leptomorphus ypsilon</i> . | 189. <i>B. obesula</i> . |
| 178. <i>Allocotocera parvula</i> . | 190. <i>B. inops</i> , var. a. |
| 179. <i>Boletina obscura</i> . | 191. <i>B. sedula</i> . |
| 180. <i>B. cincta</i> . | 192. <i>B. nacta</i> . |

- | | |
|----------------------------|----------------------------------|
| 193. <i>Leia varia.</i> | 199. <i>L. striata</i> , var. a. |
| 194. <i>L. melæna.</i> | 200. <i>L. plebeja.</i> |
| 195. <i>L. nigra.</i> | 201. <i>L. oblectabilis.</i> |
| 196. <i>L. ventralis.</i> | 202. <i>L. dryas.</i> |
| 197. <i>L. cuneola.</i> Ad | 203. <i>L. cincta.</i> |
| 198. <i>L. winthemii.</i> | 204. <i>L. decora.</i> |

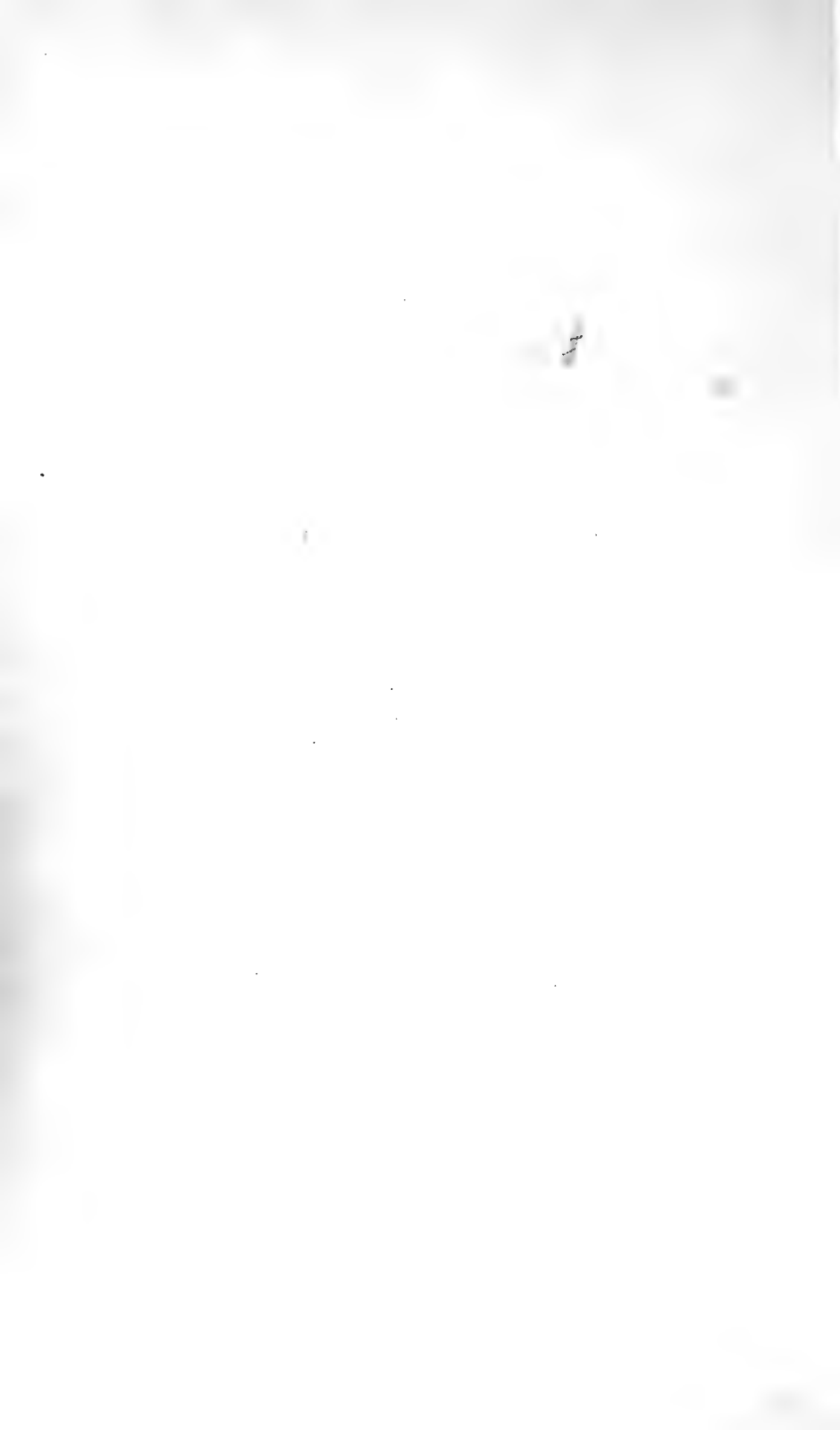
Plate.

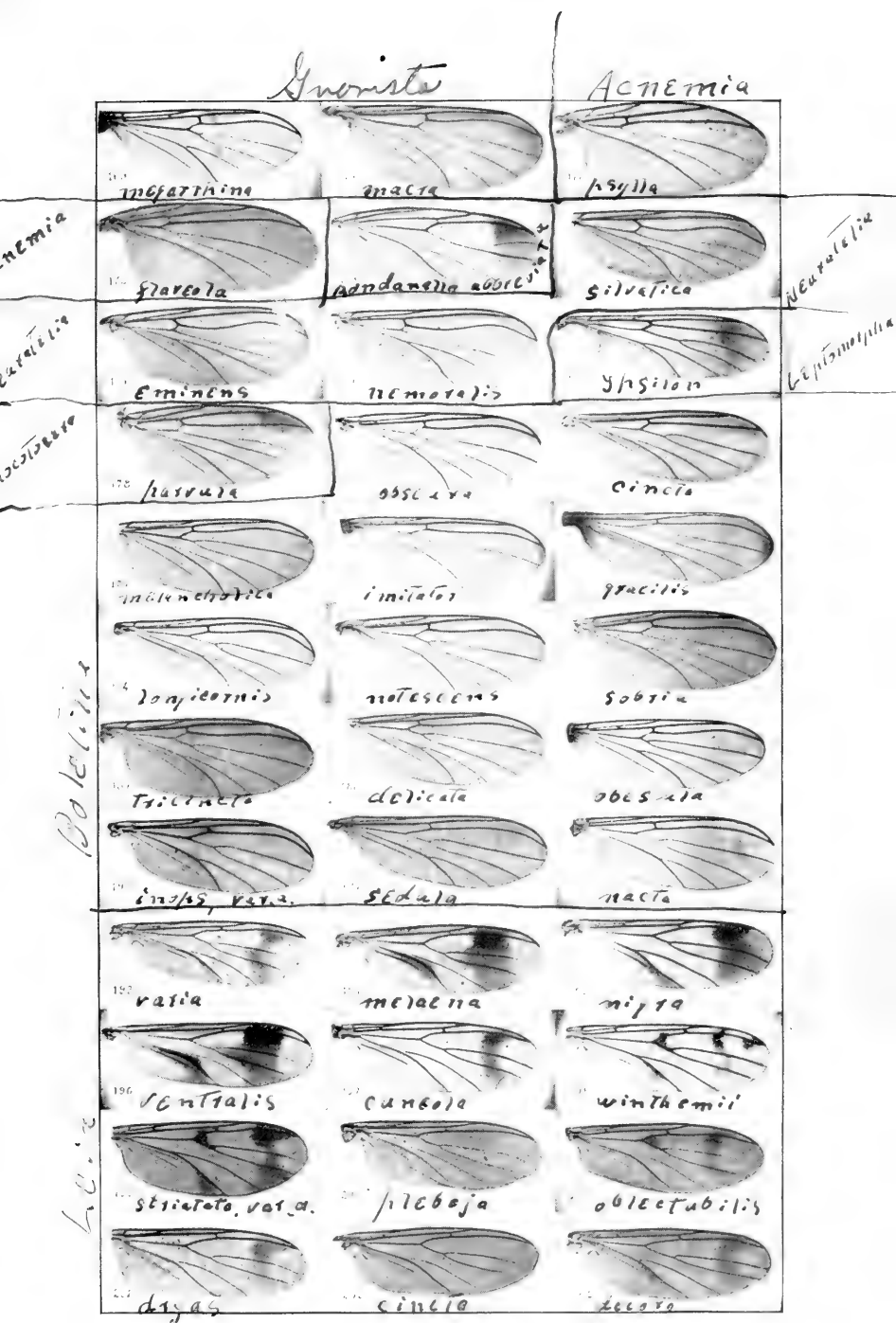
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|---|--|
| 205. <i>Leia opima.</i> | 224. <i>Cordyla manca.</i> |
| 206. <i>L. sublnata.</i> | 225. <i>C. scita.</i> |
| 207. <i>L. bivittata.</i> | 226. <i>C. volucris.</i> |
| 208. <i>Phthinia curta.</i> | 227. <i>C. recens.</i> |
| 209. <i>P. tanypus.</i> | 228. <i>C. neglecta.</i> |
| 210. <i>Coclosia gracilis.</i> | 229. <i>Brachypeza bisignata</i> , var
divergens. |
| 211. <i>C. lepida.</i> | 230. <i>Rhymosia</i> sp a. |
| 212. <i>C. modesta.</i> | 231. <i>R.</i> sp. b. |
| 213. <i>Syntemna rejecta.</i> | 232. <i>R. serripes.</i> |
| 214. <i>S. vittata.</i> | 233. <i>R. inflata.</i> |
| 215. <i>S. separata.</i> | 234. <i>R. imitator.</i> |
| 216. <i>Megophthalmidia occidentalis.</i> | 235. <i>R. akeleyi.</i> |
| 217. <i>Anatella silvestris.</i> | 236. <i>R. captiosa.</i> |
| 218. <i>Docosia dichroa.</i> | 237. <i>R. diffissa.</i> |
| 219. <i>D. nigella.</i> | 238. <i>Allodia crassicornis</i> , var. a. |
| 220. <i>D. nitida.</i> | 239. <i>A. bulbosa.</i> |
| 221. <i>Trichonta triangularis.</i> | 240. <i>A. actuaria.</i> |
| 222. <i>T. diffissa.</i> | |
| 223. <i>T. patens.</i> | |

Plate.

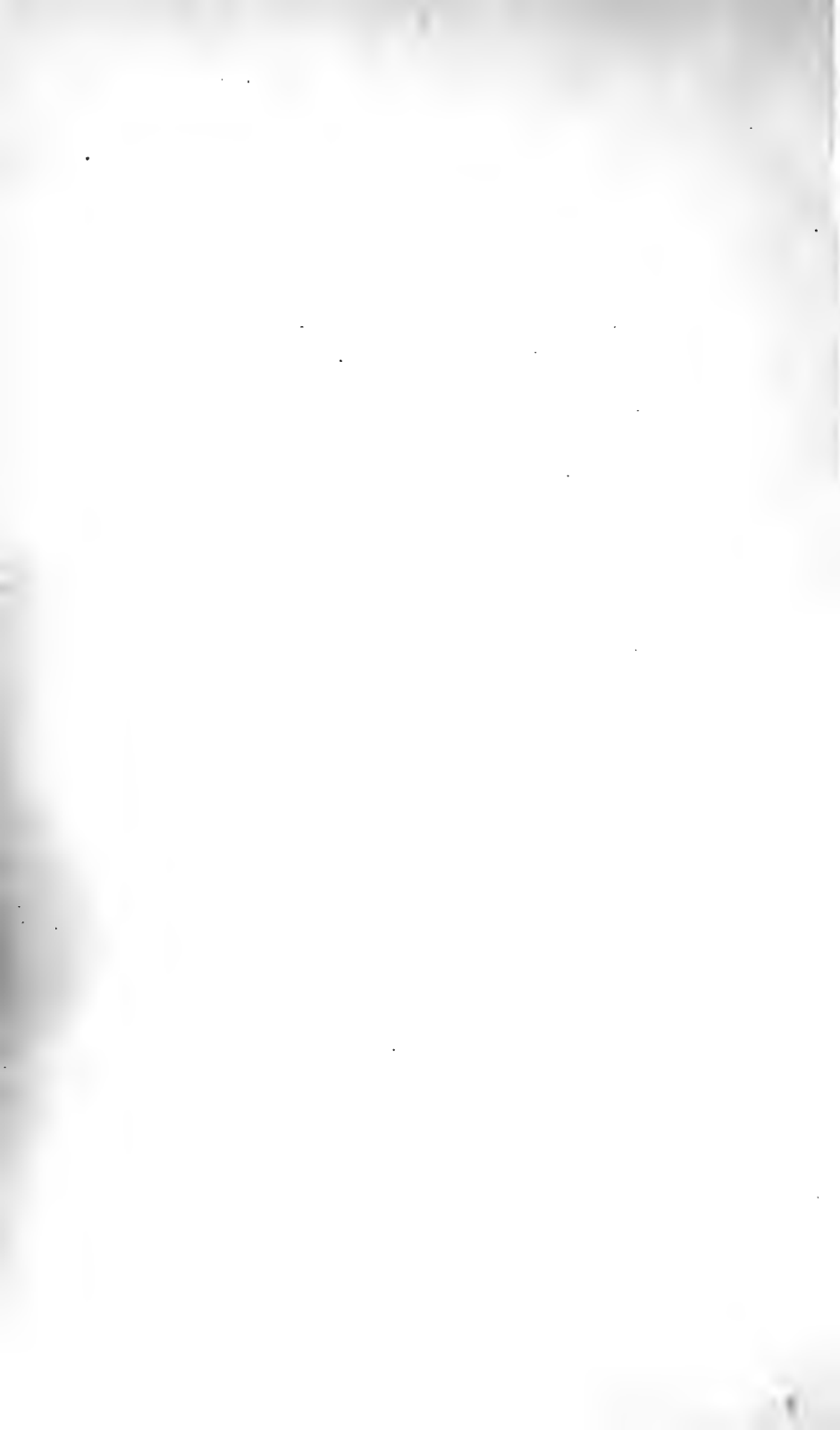
- | | |
|--|-----------------------------------|
| 241. <i>Docosia dichroa.</i> | 244. <i>Leia winthemii.</i> |
| 242. <i>Exechia.</i> | 245. <i>Mycetophila punctata.</i> |
| 243. <i>Boletina vittata</i> (Europe). | |

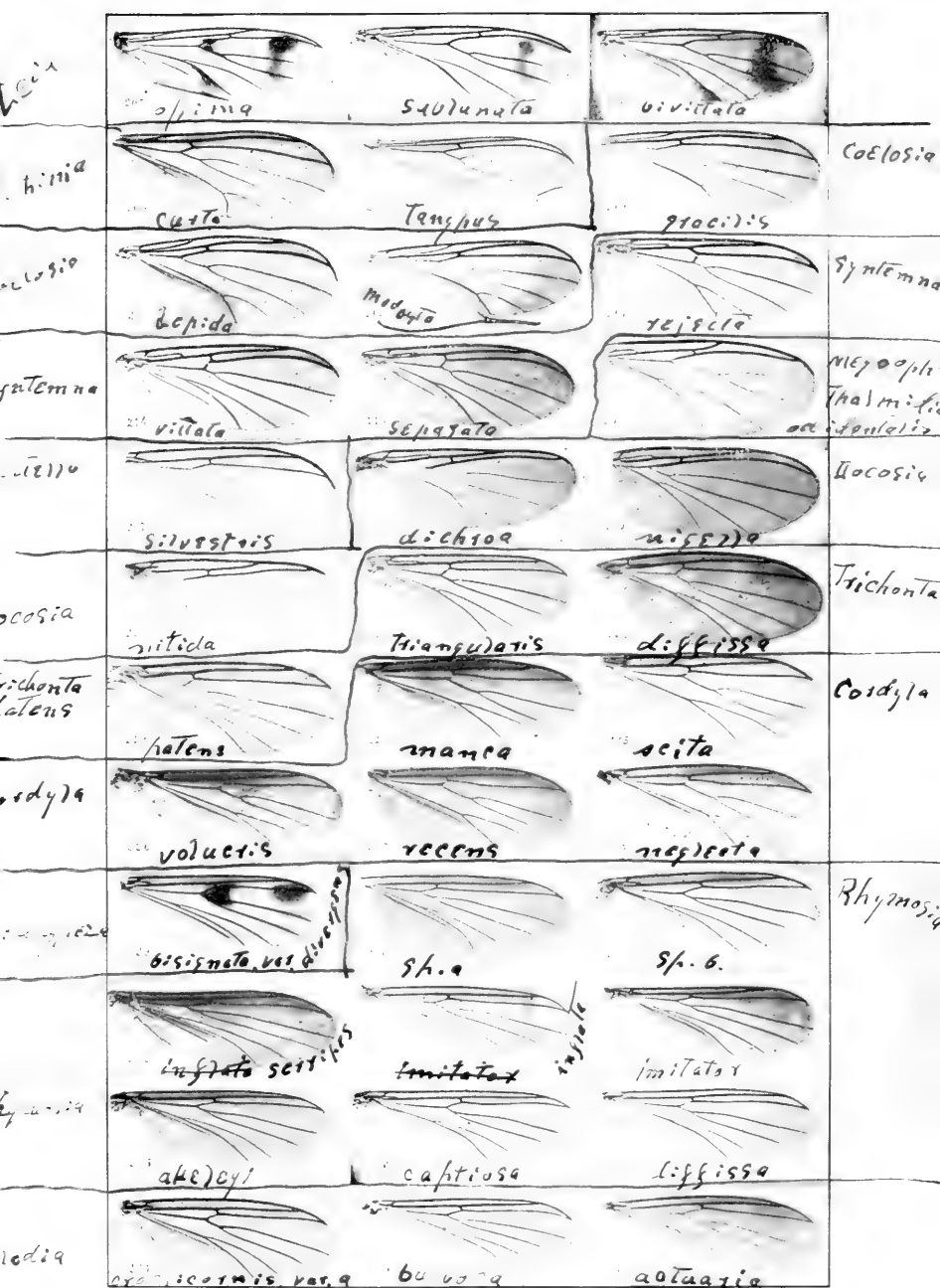




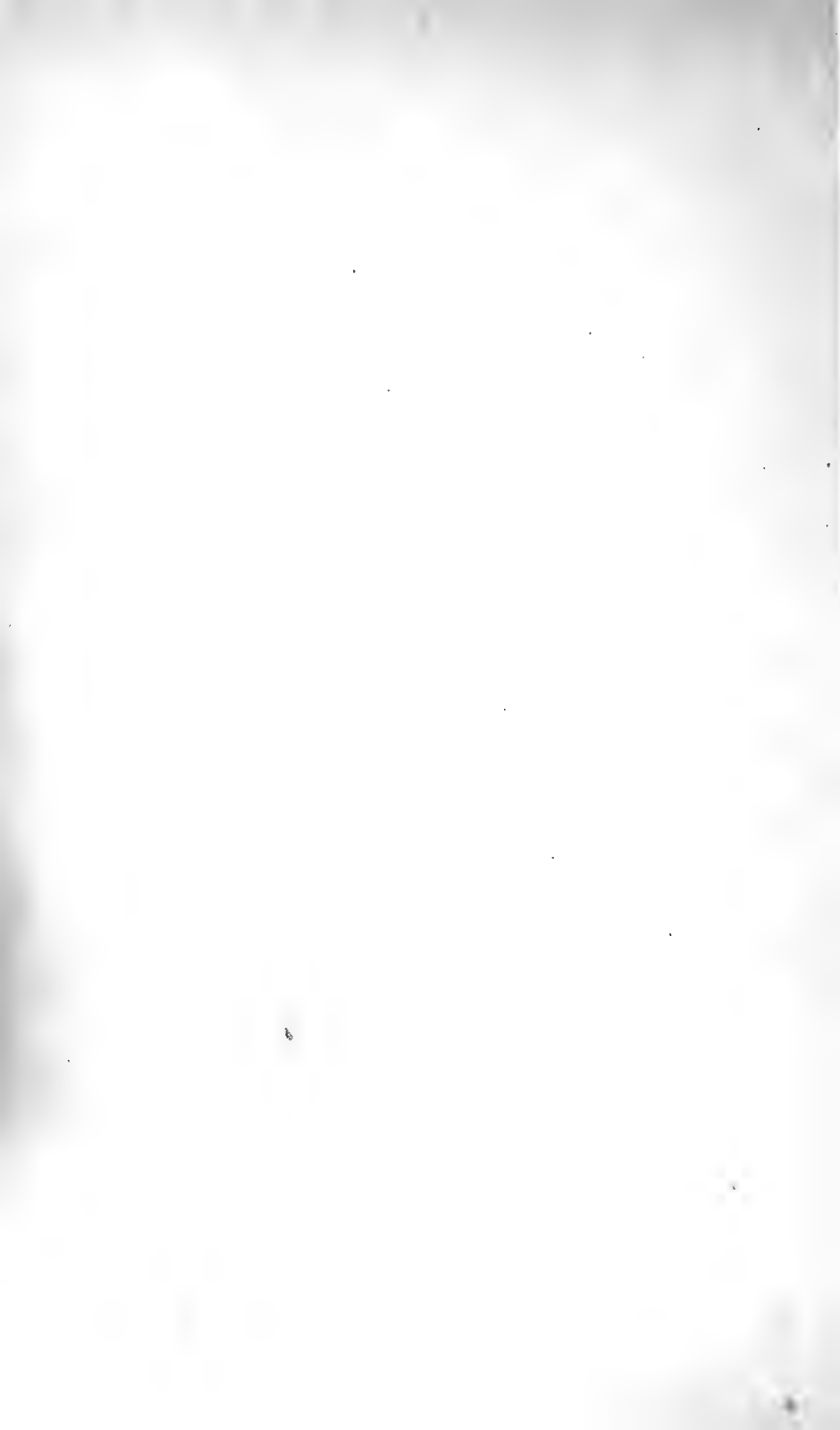


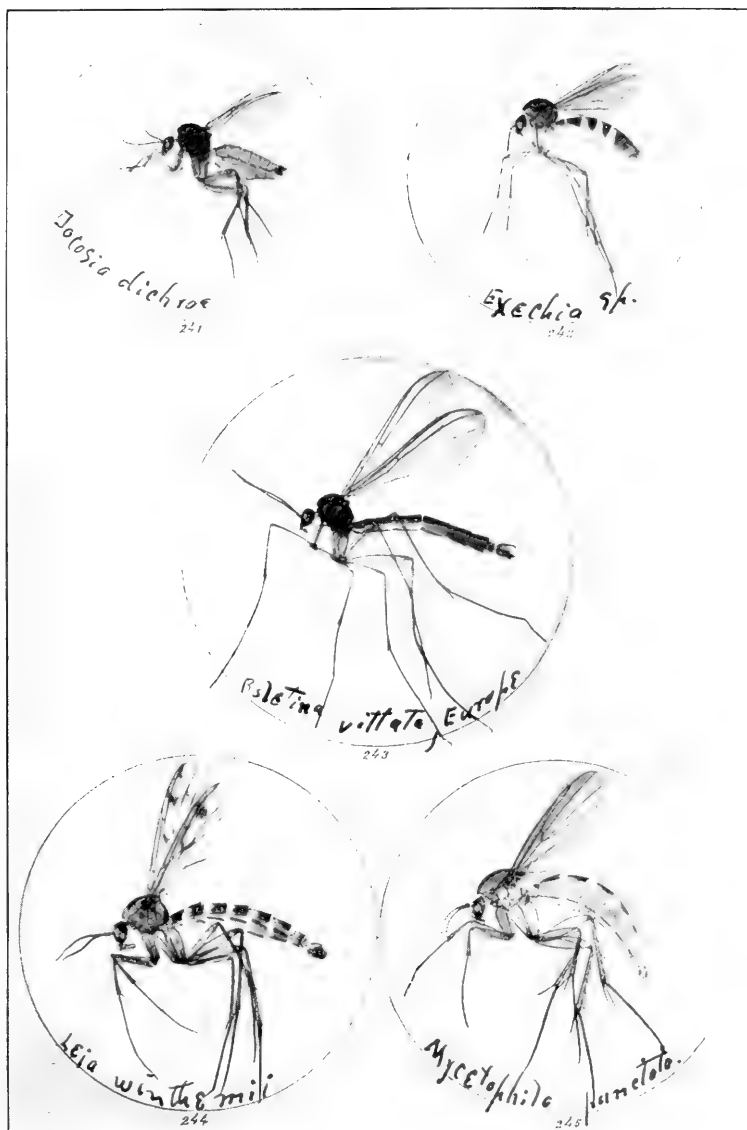
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C. Adams
University of Maine

Maine Agricultural Experiment Station

ORONO

BULLETIN No. 200.

JUNE 1912.

THE FUNGUS GNATS OF NORTH AMERICA. Part IV (Conclusion).

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BULLETIN No. 200.

THE MYCETOPHILIDAE OF NORTH AMERICA.

PART IV (CONCLUSION)*.

O. A. JOHANNSEN.

The species of the genera belonging to Series I as well as the first 6 genera of Series II of the subfamily *Mycetophilinae* were described in Part III. In this paper the species of the remaining genera are characterized, as well as those of the subfamily *Sciarinae*. The members of the former so far as known injure mushrooms only; the latter constitute the most important group so far as the agriculturist is concerned.

Though occasionally reported as injuring mushrooms the members of the *Sciarinae* are not as a rule regarded as serious pests of the fleshy fungi, differing in this respect from the species of the other subfamilies. After partial decay of fungous growths, however, larvæ of *Sciara* are found in abundance, and it is this fact, which in some cases at least, has led observers and growers to attribute the destruction to these gnats when in all probability the injury was caused by species of *Mycetophila*, *Erechia* or *Phorids*.

On the other hand there is no lack of evidence of the harmful character of some species of *Sciarinae* to seed corn, to potatoes, to wheat, and to the roots of other plants. Professor Forbes in his 7th report refers to the injury which the larvæ do to seed corn, and in his 15th (pp. 95-98) notes the destruction of cucumber plants by these pests. In an earlier report he mentions the occurrence of larvæ infesting the roots of grass.

* Papers from the Maine Agricultural Experiment Station, Entomology No. 52. Parts I, II and III were published in Bulletins 172, 180 and 196 respectively.

Florists look upon these little gnats with a suspicion which is more than justified, as the fact that the larvæ feed upon the tender roots of potted plants is well established. *Sciara tritici* is identified with an injury to the roots and stems of wheat, and it is probable that the damage caused by it or by some other member of this genus is far more widespread than is generally known owing to the insidiousness of its attack.

In Bulletin 27, n. s. (U. S. Dept. Agr. Div. of Entomology) Mr. Chittenden cites several instances of damage occasioned by *S. inconstans* to peas growing in flower pots, and to lettuce, cucumbers, and carnations. The injury caused by *S. mali* is according to Fitch's own account, secondary in its nature, the larvæ feeding on apples already affected by the Codling moth. It may be moreover only an accidental occurrence, as there is no record in entomological literature, as far as I know, of a similar attack. Benj. Walsh's Grape Midge (First Ann. Rept. Ill. 21, 1867) belongs in the same category, it being a guest of more injurious species.

Walsh and others have long ago suggested the possibility that the larvæ of some species of *Sciara* are associated in some way with a sort of potato scab. The fact that the larvæ or these gnats are so abundant in barnyard manure and that scab is most prevalent on potatoes from fields which have been well fertilized has suggested the possibility of this relationship. Most significant in this connection is the account given by Dr. A. D. Hopkins of *Pnyxia (Epidapus) scabiei*. Concerning this species he says: "I have observed the larvæ of a *Sciara* and an *Epidapus* feeding on the living, healthy tissue of potato tubers, and have obtained conclusive evidence that they are capable of causing, and actually do cause, conditions which in one stage would be recognized as potato-scab and in a more advanced stage would be recognized as a form of potato-rot."

From the context of Mr. Hopkin's article it is not necessarily inferred that he associates that form of potato scab caused by *Oospora scabiei* with the injury (or infection) produced by the insect.

My own observations of the larvæ of *Sciara* confirm the statements made by some of the earlier writers. I have found larvæ in potatoes feeding on the sound tissue, on the roots of various grasses and in tulip bulbs. In some preliminary experiments I failed to induce larvæ to attack a tuber with unbroken

skin, but more extensive trials may give different results. The cut surfaces of seed potatoes are readily attacked and the seed at times seriously damaged especially where the soil has been fertilized by barnyard manure.

Other data along these lines are on hand and more experiments are contemplated, the results of which are to be published at a later date. Besides the acknowledgments already made in Part I, I wish to add that through the kindness of Mr. Fredr. Knab I have had the privilege of again examining the types in the U. S. National Museum. To Dr. E. P. Felt I desire to express my obligations for the loan of type material of Felt's and Lintner's species.

THE MYCETOPHILINAE (Concluded.)

24. Genus *Phronia* Winnertz. *E*

Verh. Zool.-bot. Ges. Wien. XIII. 857, 1863.

Lateral ocelli contiguous to the eye margin, the middle one small, placed in a groove near the base of the frontal triangle; antennæ in the male frequently, in the female, usually cylindrical. Legs slender, tibial setæ delicate, fore tarsi of female sometimes incrassate. Costa produced, sometimes but very slightly, beyond tip of Rs; subcosta short, rarely half as long as the basal cell R, usually ending free, media forks distad of the base of Rs, rarely directly under it, cubitus forks distad of the fork of the media, its branches usually widely divergent; anal vein incomplete.

The forking of the media distad of the base Rs and the slightly produced costa will distinguish this genus from *Exechia*.

Table of Species.

- a. Costa produced about 1-3 of distance from Rs to M₁; Mass.
 - 1. *producta* n. sp.
- aa. Costa produced less than 1-5 of distance from Rs to M₁.
 - b. Fore tarsal joints 2-4 not distinctly swollen beneath.
 - c. Hind coxæ, and usually middle coxæ also, fuscous, hypopygium black (Fig. 25).
 - 2. *insulsa* n. sp.
 - cc. All coxæ yellowish.
 - d. Western or middle western species.

- e. Males; hypopygium with globose terminal appendages.
- f. Brown species (Fig. 26). 3. *venusta* n. sp.
- ff. Thorax yellow with brown vittæ. 7. *incerta*.
- ee. Females.
- f. Third antennal joints nearly three times as long as broad; abdomen uniformly fuscous. 3. *venusta*, var. a.
- ff. Third antennal joint less than twice as long as broad, or otherwise distinct.
- g. Pleura fuscous, S. D. 3. *venusta*.
- gg. Pleura largely yellow; hind margin of abdominal tergites, yellow; Wyo. and B. C. 7. *incerta*?
- dd. Eastern species; males.
- e. Terminal lobes of hypopygium longer than basal segment. 4. *difficilis* n. sp.
- ee. Terminal lobes of hypopygium shorter than basal segment.
- f. Hind femora tipped with brown; base of abdomen largely yellow; hypopygium with short broad forceps (Fig. 28). 5. *similis* n. sp.
- ff. Hind femora without conspicuous brown apices; hypopygium with more elongate forceps (Fig. 29). 6. *rustica* var. a.
- bb. Fore tarsal joints, 2-4, distinctly swollen beneath and broader than the metatarsus, apex of the latter enlarged; females.
- c. Western species; base of abdomen fuscous; Stanford Univ., Cal. *Phronia* sp.
- cc. Eastern species.
- d. Hind coxæ yellow. 4. 5. *difficilis*, *similis*.
- dd. Hind coxæ fuscous. 2. *insulsa* n. sp.

1. *Phronia producta* n. sp.

Male. Length 2 mm. Head with antennæ fuscous, the face, palpi and scape reddish yellow; intermediate antennal joint about 1.5 times as long as wide. Thorax reddish yellow with three subconfluent brown stripes; hairs pale, setæ black; 4 scutellar setæ. Abdomen yellow anteriorly with dorsal stripe and posterior segments blackish; hypopygium (Fig. 24) dark. Coxæ and legs yellow, tips of hind femora and of tibiæ blackish; tibial spurs and tarsi brown; fore metatarsus about 7-8 as long as tibia. Wings (Fig. 152) hyaline, tinged with yellow; halteres yellow. Brookline, Mass. (C.W.J.). Aug.

2. *Phronia insulsa* n. sp.

Male. Length 2 mm. Head and antennæ fuscous, palpi and scape yellow. Thorax brown, the humeri and pleura yellowish brown; hairs yellow; setæ brown to black, those of the scutel-

lum 4 in number. Abdomen brown, apical segments, and hypopygium (Fig. 25) blackish. Legs and fore coxæ yellow, the middle and hind coxæ, tips of middle and hind femora and of tibiæ, dark brown; tibial spurs and tarsi brown. Wing (Fig. 153) hyaline, with a brownish tinge; halteres yellow.

Female. Similar to the male in coloring. Fore metatarsus and tibia subequal; fore tarsal joints, 2-4 swollen beneath, tip of the 1st enlarged. R. I. and Ithaca, N. Y. March and Aug.

Var. a. Female. Similar to the foregoing but only the 4th and tip of the third joint of fore tarsus distinctly swollen. Ithaca, N. Y.

3. *Phronia venusta* n. sp.

Male and female. Length 2.5 mm. Head and antennæ brown; palpi and scape dusky yellow; intermediate antennal joints about twice as long as wide. Thorax brown, including hairs and setæ; scutellum with 6 or more marginal setæ. Abdomen brown, hairs pale; hypopygium (Fig. 26) yellow with blackish claspers. Coxæ and legs yellow, tips of middle and hind femora and tibiæ slightly brownish, tibial spurs and tarsi brown; fore metatarsus about 1-16 shorter than the tibia. Wings (Fig. 154) yellowish hyaline; halteres yellow. Male, Vollmer, Ida! (J.M.A.) Sept.; female, Brookings, S. D.

Var. a. Female. Similar to foregoing but thorax more yellowish with 3 subconfluent brown stripes. Antennæ more elongate, third joint nearly 3 times as long as wide. Moscow Ida. (J.M.A.).

4. *Phronia difficilis* n. sp.

Male. Length 2.5 mm. Head brownish; face, palpi and 3 to 4 basal joints of antennæ yellow, remainder of antennæ brown; intermediate segments about 1.5 times as long as wide. Thorax yellow, the center of the mesonotum, scutellum and metanotum from pale to dark brown; hairs yellow, setæ brown; 4 marginal setæ on scutellum. Abdomen yellow, the dorsum of each sclerite with a brown triangle the base upon the posterior margin, the fifth and sixth segments wholly blackish, hypopygium (Fig. 27) yellow, its hairs darker especially at the apex. Coxæ and legs yellow, the tips of the hind femora and of hind tibiæ, and all the tibial spurs and tarsi, brown; fore metatarsus and tibia subequal in length. Wings (Fig. 155) yellowish hyaline; halteres yellow. Ithaca, N. Y. 2 specimens.

Female. Similar to the male in coloring but the abdomen is largely brown, the anterior margin of each sclerite and the anterior portion of the venter yellow. The tip of the metatarsus and joints 2-4 of the fore tarsi swollen beneath. Ithaca, N. Y.

5. *Phronia similis* n. sp.

Male. Length 2.5 mm. Coloring as in the preceding species (*P. difficilis*) excepting that the pleura are brown, light brown in one specimen, darker in another, and that the dark triangles of the abdomen are larger. Hypopygium (Fig. 28) black, the appendages shorter than the basal sclerite. Wing, Fig. 156. Ithaca, N. Y. Sept. 2 specimens. The hypopygium resembles that of *P. Taczanowskyi* Dzd.

It is barely possible that the females described under *P. difficilis* belong here.

6. *Phronia rustica* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 875. 1863.

Male and female. Length 3-3.3 mm. Head brown, 3 or 4 basal joints of antennæ, and palpi yellow; antennæ of male about 1.5 times, of female about as long as head and thorax united. Thorax brown, with ashy reflection, in teneral specimens the pleura are yellow; setæ brownish. Abdomen brown with appressed pale hairs; hypopygium large, yellow, sometimes darker apically. Coxæ and legs yellow, tarsi brown; fore metatarsus at least as long as the tibia. Wing brownish hyaline; halteres yellow. "Greenland."

Var. a. Differs in structure of the hypopygium (Fig. 29) Ithaca, N. Y. Aug.

7. *Phronia incerta* Adams.

Wash. Carnegie Inst. 67. 37. 1907. (*Mycetophila*).

Male. Length 4 mm. Head dark brown, mouth parts and basal joints of antennæ yellow. Thorax obscure yellow; mesonotum with 2 V-shaped figures, one set within the other, resulting in fusion of the two lateral stripes posteriorly and with the median one between them being divided anteriorly. Scutellum and metanotum brown, former with an apical pair of bristles, mesonotum with short yellow pile laterally and

black bristles. Abdomen obscure yellow, base of each segment dark brown dorsally, on the posterior segment the color comes to encircle the segment; the short pile is black. Legs light yellow, tarsi becoming tinged with brown; beside the long apical bristles the middle and hind tibiae have each a row of shorter bristles; anterior tarsi twice as long as their tibiae, middle tarsi 1.5 times as long and hind tarsi as long as their respective tibiae. Wings hyaline; Rs and anterior branch of media divergent, furcation of media beyond base of Rs. Halteres light yellow. "Mayfield Cave, Ind."

An examination of the type specimen, which was sent to me by Dr. Adams, proves it to be a true *Phronia*. The costa is but slightly produced beyond the tip of Rs. The hypopygium which is pale yellow, resembles that of *P. venusta* in the form of the terminal lobes but differs in having upon the inner side of each lobe near the tip a patch of short stout setae projecting dorsad.

Female. A specimen from Selkirk Mts. B. C. and one from Wyoming may belong here. They differ in not having the lateral stripes of the mesonotum fused posteriorly.

25. Genus *Telmaphilus* Becker.

Mitt. Zool. Mus. Berl. IV. 67. 1908.

With the characters of *Phronia*, differing only in having an elongate attenuated subcosta which ends free beyond the middle of the basal cell R and in having one or two dusky clouds upon the wing. Besides the two species assigned to this genus by Mr. Becker it is probable that the European species *Phronia forcipula* (var. *humeralis*) *basalis* and *nitidiventris* also belong here.

Table of species.

- | | |
|---|---------------------------|
| a. Apical wing cloud wide, arising proximad of apex of R_1 ; Rs strongly bowed. Cal. | 1. <i>tenebrosa</i> . |
| aa. Apical wing cloud narrow, arising at apex of R_1 ; Rs not strongly bowed (Fig. 158). N. H., N. Y. | 2. <i>nebulosa</i> n. sp. |

1. *Telmaphilus tenebrosa* Coquillett.

Proc. Ent. Soc. Wash. VI. 170. 1904 (*Phronia*).

Female. Length 2.5 mm. Black, the halteres and legs yellow, the last 2 pairs of coxae, the hind edge of the front ones, a streak on under side of each femur near the base, the apices

of the hind femora, and the tarsi except their bases, brown. Third joint of antennæ nearly twice as long as wide, the following joints becoming successively shorter to the fourteenth which is as wide as long; first joint slightly longer than wide, the second as wide as long. Body grayish pruinose, the hairs and bristles yellowish. Wings hyaline, the apex from a short distance before the apex of R_1 to tip of Cu_2 and a cloud below the latter, dark gray; Sc attenuated toward its apex, becoming obsolete slightly beyond middle of basal cell R , Rs strongly bowed toward R_1 ; media forks at 1-3 of distance from the crossvein to the forking of the cubitus. "San Mateo Co., Cal."

2. *Telmaphilus nebulosa* n. sp.

Male and female. Length 2.5. Similar to the foregoing but differing as follows: Underside of each femur without dark streak; apical wing cloud begins at the apex of R_1 ; Rs not strongly bowed toward R_1 (Fig. 158); fore metatarsus and tibia subequal; hypopygium (Fig. 30) black. Hampton, N. H. (S. A. Shaw), April; Ithaca, N. Y. April. *m*

✓ 26. Genus *Erechia* Winnertz. *E*

Verh. Zool.-bot. Ges. Wien. XIII. 879. 1863.

Lateral ocelli closely contiguous to the eye margin; middle ocellus, when present, placed in a groove on the front (Fig. 67 in Part I). Legs long and slender, fore metatarsus subequal or slightly longer than the tibia, rarely much shorter; tibial setæ delicate (Fig. 62, Part I); posterior basal seta of hind coxæ present. Subcostal vein very short, incomplete or ending in R_1 ; costal vein does not extend beyond the tip of the radial sector; media fork proximad of the basal section of the radial sector, or rarely directly under it; cubitus forks distad of the fork of the media; its branches widely divergent.

The larvæ, which are frequently found in fungi, do not have transverse rows of ambulacral setulæ.

Owing to the great similarity of the members of this genus, and the frequent though slight variation of the wing venation and coloration in individuals of the same species as demonstrated in breeding experiments, I am only able to give a table to the males based largely upon the form of the hypopygia. (For brevity the first segment of R_1 measured from the humeral crossvein is designated as a, the second segment, b.)

Table of species.

Males.

- a. Curvature of Rs conspicuous, the ratio of the maximum normal of the chord to the chord itself 4.5% or more, and the ratio of a to b, .65 or less.
- b. Fore metatarsus 1.15 or more longer than the tibia.
- c. Curvature of Rs moderate (4.5%), fork of cubitus noticeably distad of base of Rs (Fig. 159); hypopygium with two of the 3 pairs of appendages each tipped with a black spine.
1. *perspicua* n. sp.
- cc. Curvature of Rs 7.5% or over; fork of cubitus but slightly distad of base of Rs.
- d. Hind margins of abdominal segments yellow; hypopygium (Fig. 32).
2. *umbratica* Ald.
- dd. Yellow marking of abdominal segments, when present, confined to the anterior margin; hypopygium (Fig. 33).
3. *nugax* n. sp.
- bb. Fore metatarsus shorter than the tibia; hypopygium (Fig. 34).
4. *nexa* n. sp.
- aa. Curvature of Rs not conspicuous, ratio of maximum normal of the chord to the chord 4% or less, and the ratio of a to b, .70 or more.
- b. Hind margins of abdominal segments yellow and the two larger pairs of appendages of hypopygium broad, lobular.
- c. Fore metatarsus over 1.25 tibia in length; curvature of Rs moderate (Fig. 163); hypopygium (Fig. 35).
5. *abrupta* n. sp.
- cc. Fore metatarsus less than 1.12 tibia in length, curvature of Rs slight (Fig. 164); hypopygium (Fig. 36).
6. *canalicula* n. sp.
- bb. Abdomen unicolored, black or yellow or hind margins of abdominal segments dark, or hypopygium of different structure.
- c. Yellow species, darker markings on thorax and abdomen pale brown.
- d. Each branch of longer forceps with curved branch on inner side (Fig. 39).
9. *satiata* n. sp.
- dd. Ventral sclerite of hypopygium, large, quadrangular (Fig. 38a).
8. *quadrata* n. sp.
- cc. Thoracic and abdominal markings dark brown.
- d. Fore metatarsus about 1-8 longer than the tibia; each limb of the longer forceps either with distinct branch near apex or wide lobe at base.
- e. Thorax and abdomen with considerable yellow.
- f. Smaller species, 3 mm in length; each limb of longer forceps with curved branch on inner side; (Fig. 39).
9. *satiata* n. sp.
- ff. Larger species, over 4 mm in length.
- g. Limbs of both forceps forked (Fig. 41).
10. *nugatoria* n. sp.

- gg. Longer forceps not forked at apex.
- h. Hypopygium as shown in figure. (Fig. 42).
- 11. *nativa* n. sp.
- hh. Hypopygium as shown in figure. (Fig. 43).
- 12. *interrupta*. Zett. E
- ee. Thorax, and abdomen largely, dark.
- f. Apex of limbs of one pair of forceps palmate with setæ, the other pair lobular (Fig. 44).
- 13. *palmata* n. sp.
- ff. Longer forceps with attenuated apices (Fig. 45).
- 14. *fungorum*. P. J.
- dd. Fore metatarsus not more than 1.1 longer and sometimes shorter than tibia; hypopygium various.
- e. Lateral sclerite of hypopygium with bent or curved setæ, appendages short (Fig. 37).
- 7. *cincinnata* n. sp.
- ee. Without bent setæ.
- f. Limbs of one pair of forceps at least, over 1-3 as broad as long.
- g. Both pairs of forceps with oval limbs; (Fig. 46); fore metatarsus about .9 as long as the tibia; cubitus forks very slightly distad of the base of Rs.
- 15. *assidua* n. sp.
- gg. One of the forceps with tapering apices; cubitus forks noticeably distad of the base of Rs.
- h. Thorax yellow with brown dorsum; one pair of forceps oval but apex tapering (Fig. 47).
- 16. *auxiliaria* n. sp.
- hh. Thorax dark; broader forceps with spatulate limbs each with 2 stout mesad projecting setæ (Fig. 48).
- 17. *bellula* n. sp.
- ff. Both forceps rather slender, at least apically.
- g. Postero-ventral angles of hypopygial sclerite with 1 to 3 strong setæ, or a blunt process.
- h. A single blunt spine or process on each posterior ventral angle.
- i. A single long blunt spine on each postero-ventral angle (Fig. 49s); thorax and abdomen with yellow markings.
- 18. *bella* n. sp.
- ii. Postero-ventral angle produced into a slender blunt process; thorax and abdomen dark.
- 27. *analís*. Ad.
- hh. One or more setæ on the angles.
- i. Postero-lateral margins of hypopygial segment ciliate (Fig. 50); pleura in part yellow.
- 19. *captiva* n. sp.
- ii. Margin not distinctly ciliate; pleura brown.
- j. Postero-ventral angle each with a single seta; the broader forceps without tuft of setæ on the preapical angle; (Fig. 51b).
- 20. *absoluta* n. sp.

- jj. Postero-ventral angles each with several setæ; the broader forceps with blunt apex and a tuft of setæ on the preapical angle (Fig. 52). 21. *capillata* n. sp.
- gg. Postero-ventral angles of hypopygial sclerite without several conspicuously strong setæ or spines.
- h. One pair of the hypopygial appendages curved on apical third and conspicuously longer than the others. (Fig. 53); dark brown species. 22. *obediens* n. sp.
- hh. Two pairs of appendages subequal in length.
 - i. Appendages unusually slender; one pair blunt, each limb of the other pair with a long sub-basal branch (Fig. 54b); thorax brown; abdomen with yellow. 23. *attrita* n. sp.
 - ii. Appendages otherwise.
 - j. The more slender forceps with several apical setæ (Fig. 55); pleura in part yellow. 24. *repanda* n. sp.
 - jj. Slender forceps without apical setæ.
 - k. Abdomen with yellow markings at base of venter; hypopygium (Fig. 56). 25. *absurda* n. sp.
 - kk. Abdomen brown; hypopygium (Fig. 57). 26. *casta* n. sp.

E. *analis* Coq. belongs to *Mycothera*.

General description of Species of Exechia.

The species described below, unless specifically stated to the contrary, possess the following characters in common:

Head and antennæ fuscous, the scape and base of the first flagellar joint and the palpi yellow. Dorsum of the thorax fuscous apparently consisting of 3 confluent stripes, leaving the humeri yellow; scutellum and metanotum fuscous; hairs pale, setæ blackish; scutellum with 2 black setæ. Dorsum of abdomen fuscous, hypopygium yellow. Coxæ and legs yellow, the tibiæ dusky yellow, spurs and tarsi infuscated. Subcosta short, ends free; venation as figured. Halteres yellow.

Although the ovipositor of the female offers good specific characters, descriptions are only given of those females which are definitely associated with males.

1. *Exechia perspicua* n. sp.

Male. Length 3.25 mm. Pleura brown. Abdomen brown, the posterior segments darker brown; appendages of the hypopygium (Fig. 31) slender; terminal ventral sternites, paired, rectangular. Fore metatarsus over 1.15 the tibia in length. Wing dusky hyaline (Fig. 159). Sage Creek, Wyo.. (W.M.W.) Sept.; Orono, Me.! Oct.

2. *Exechia umbratica* Aldrich.

Annual Rept. Dept. Geol. Ind. XXI. 186. 1896. (*Mycetophila*).

Female. Length 5.2 mm; wing 4.5 mm. . . . Thorax clay yellow, somewhat pruinose with white, dorsum somewhat infuscated and provided with numerous stout black hairs along the sides; scutellum and metanotum also brownish. Abdomen brown, compressed, the distal part of each segment with a lighter ring, which is broader underneath. . . . In the front leg the entire tarsus is about 4 times the length of the tibia, in the middle leg 2.5 and in the hind leg 1.5 times. Wing tinged with yellow along the costa and to a less degree all over the apical half. "Shilo Cave, Ind. July."

Male and female. Like the female as described above, but dorsum with 3 subconfluent brownish stripes. Foremetatarsus nearly 1.5 the tibia in length. The longer appendages of the hypopygium broad, with a preapical angle (Fig. 32). Wing (Fig. 160). Ithaca, N. Y.

3. *Exechia nugar* n. sp.

Male. Length 5 mm. Pleura light brown, mesonotum a little darker, thoracic setæ dark brown, humeri yellow. Abdomen brown, on each side of segments 2 and 3 each with narrow yellow triangle whose base rests upon the posterior margin of the segment; hypopygium yellow (Fig. 33). Wings hyaline, tinged with brown in the costal cell and in the forks of media and cubitus (Fig. 161). Fore metatarsus about 1.25 longer than the tibia. Rouville Co. Que. Oct., Ithaca, N. Y. April.

4. *Exechia nexa* n. sp.

Male. Length 5 mm. Thorax reddish brown; abdomen brown, darker brown posteriorly, hind margins of segments 2-5 faintly dusky yellow; hypopygium yellow (Fig. 34). Foremetatarsus and tibia subequal in length. Wings hyaline, tinged with brown (Fig. 162). Ithaca, N. Y.

5. *Exechia abrupta* n. sp.

Male. Length 4 mm. Thoracic setæ black; abdomen yellow, each segment with large, brown, dorsal triangle widest part on the anterior margin, on all segments, except 1 and 2, the anterior angles meeting on the venter, apex not reaching the posterior margin except on 5, 6 wholly brown; hypopygium yellow

(Fig. 35). Fore metatarsus about 1.3 tibia in length. Wings hyaline, tinged with yellow (Fig. 163). Ithaca, N. Y.

6. *Exechia canalicula* n. sp.

Male. Length 5 mm. Mesonotum with 3 wide brown stripes, humeri and space between the stripes yellow; scutellum, metanotum and pleura paler brown; setae black. Abdomen as in *E. abrupta*; hypopygium (Fig. 36) black. Fore metatarsus about 1.06 the tibia in length. Wings hyaline, yellow tinged (Fig. 164). N. C.! N. J., July.

Female. The brown of the abdomen a little more extended, sixth segment also with yellow margin. N. C.

7. *Exechia cincinnata* n. sp.

Male. Length 3-4 mm. Thorax brown, humeri yellow, setae blackish. Abdomen dark brown, each side of segments 2, 3 and 4 each with a yellow triangle one side of which rests on the anterior margin of the segment, the other meeting the side of the opposite triangle along the venter; hypopygium (Fig. 37) yellow, with strong, curved, brown hairs, hence the specific name. Fore metatarsus very little longer than the tibia. Wing hyaline, tinged with yellow (Fig. 165).

Female. Sides of segment 5 also yellow. Orono, Maine! Oct.; Burlington, Vt., (C.W.J.) June; Mass., (C.W.J.), April, June, Sept., Dec., Ithaca, N. Y.

The Orono specimens reared from *Boletus granulatus*.

8. *Exechia quadrata* n. sp.

Male and female. Length 4.5 mm. Head, thorax and abdomen yellow, the apical half of the antennae, center of the mesonotum, metanotum, and the posterior abdominal segment, usually more dusky yellow, hypopygium with a large quadrangular ventral plate (Fig. 38a). Fore metatarsus about 1.10 longer than the tibia. Wings hyaline tinged with yellow (Fig. 166). Cape May, N. J. (Viereck) Sept.; Price Co., Wis., (W.M.W.) Aug.; Ithaca, N. Y.! Aug. Hemlock Falls, N. J., (Weidt), Aug.

9. *Exechia satiata* n. sp.

Male. Length 2.5 mm. Dorsum of thorax usually pale brown, pleura dusky yellow. Abdomen yellow, hind margins

of the first 4 segments narrowly brown and the whole of 5 and 6 dark brown or black; hypopygium yellow (Figs. 39, 40). Fore metatarsus about 1.10 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 167).

Female. Hind margins of all abdominal segments widely brown, produced forward on the median line. Ithaca, N. Y., July, reared from a shelving mushroom.

10. *Exechia nugatoria* n. sp.

Male. Length 4.5 mm. Pleura dusky yellow to light brown. Abdomen dark brown, venter of first 3 segments yellow, extending up on the sides of the third segment; hypopygium yellow (Fig. 41). Fore metatarsus about 1.15 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 168). Kingston, R. I. (J.B.). Nov., Price Co., Wis. (W.M.W.) Aug., Ithaca, N. Y.! July, Aug.

11. *Exechia nativa* n. sp.

Male. Length 4.5 mm. Pleura brown, the abdomen as in *E. nugatoria*, but the anterior margin of the 4 segments on each side with oval yellow spot; hypopygium yellow (Fig. 42). Fore metatarsus about 1.15 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 169). Orono, Me.! Oct.; Ithaca, N. Y., Nov. Reared from *Collybia* sp.?

Female. A specimen from Montpelier, Vt., (C.W.J.) June, which I believe belongs here, is similar to the male but each segment of the abdomen is widely margined with brown on sides and dorsum, produced forward on the median line.

12. *Exechia interrupta* Zetterstedt.

Dept. Scand. XI. 4240. 1852.

Male. Length 3.5-4 mm. Similar to *E. nugatoria* but the fourth segment is also largely yellow on the venter and sides. Hypopygium as figured (Fig. 43).

Female. First and sixth abdominal segments dark brown, the intermediate segments with dark triangles, smallest on the fourth and fifth, caudal segments yellow. "Europe and Greenland."

13. *Exechia palmata* n. sp.

Male. Length 3.5 mm. Thorax and abdomen dark brown; hypopygium yellowish (Fig. 44). Fore metatarsus about 1.10 longer than the tibia. Wings hyaline, tinged with brown (Fig. 170).

Female. Anterior half of the sides of the intermediate abdominal segments yellow. Torrey's Lake, Jackson Lake and Hunter's Creek! Wyo. (W.M.W.) Sept., Selkirk Mts., B. C. (J.C.B.) July; Mt. Rainier, Wash (J.M.A.) Aug.

14. *Exechia fungorum* Degeer.

Ins. VI. 142. 14 p. 22, fig. 1-13 (Tipule).

Male. Length 4 to 4.7 mm. Coloring as with *E. palmata*, a yellow humeral spot present, hypopygium dusky yellow (Fig. 45). Fore metatarsus about 1.15 longer than the tibia. Wings hyaline, tinged with brown.

Female. Similar to *E. palmata* in coloring, but yellow coloring less extended. "Europe and Greenland."

15. *Exechia assidua* n. sp.

Male. Length 3.5 mm. Thorax brown, dorsum dark brown, humeri yellow, hairs yellow, setae black. Abdomen brown, anterior part of the venter a little paler, posterior segments almost black, hypopygium dusky yellow (Fig. 46). Fore metatarsus about .87 of the tibia. Wings hyaline, tinged with brown (Fig. 171).

Female. A defective specimen from the same place, which may belong here, differs only in having fore metatarsus and tibia subequal, and in having the fork of the cubitus slightly more distad. Mt. Constitution, Orcas, Id. Wash. (J.M.A.), July.

16. *Exechia auxiliaria* n. sp.

Male. Length 2.5 mm. Dorsum of thorax brown; abdomen brown, the anterior part of the venter and the sides of segment 3, yellow; hypopygium (Fig. 47). Fore metatarsus about 1.05 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 172). Price Co., Wis. (W.M.W.), Aug., Ithaca, N. Y.:

17. *Exechia bellula* n. sp.

Male. Length 2.5 mm. Similar to *E. auxiliaria* but with

brown pleura and with brown parts darker brown, posterior end of abdomen nearly black and different hypopygium (Fig. 48). Fore metatarsus and tibia subequal. Wings (Fig. 173) hyaline, tinged with brown.

Female. Similar but the lower anterior part of the sides of the intermediate abdominal segments more or less yellow. Orono, Me. Nov.

18. *Exechia bella* n. sp.

Male. Length 2.5 mm. Thorax brown, humeri yellow, abdomen brown, the anterior part of the venter, yellow, this color extending well up the sides on segments 3 and 4, thus resembling *E. interrupta*; hypopygium yellow (Fig. 49). Fore metatarsus about 1.06 longer than the tibia. Wings hyaline tinged with yellow (Fig. 174). Price Co. Wis., (W.M.W.), Aug.; Ithaca, N. Y.!

19. *Exechia captiva* n. sp.

Male. Length 2.5 mm. Similar to *E. bella* in coloring but differs in having more yellow upon the pleura and none on the sides of abdominal segment 4; hypopygium also differs (Fig. 50). Fore metatarsus and tibia about 1.04 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 175). Cape May, N. J. (Viereck) Sept.; Burlington, Vt., (C.W.J.) June; Boston, Mass. (C.W.J.), Sept.; N. H. (Weed).

20. *Exechia absoluta* n. sp.

Male. Length 3.5 mm. Thorax brown, sides lighter brown, humeri yellow. Abdomen dark brown, the venter of the first 3 segments narrowly, an indistinct spot on each side of segment 2 and a larger, more distinct one on sides of 3, yellow; hypopygium yellow (Fig. 51). Fore metatarsus and tibia subequal. Wings hyaline, tinged with brown (Fig. 176). Rouville Co., Que.; Orono, Me. Oct. Reared from *Boletus granulatus*.

Female. Like the male but with broad dark brown or blackish margins on each segment produced along the median line, thus leaving the venter and triangular spots on the sides, yellow. Ithaca, N. Y.; Brookings, S. D. (J.M.A.); New Haven, Ct. (Viereck), Riverton, N. J. (C.W.J.).

21. *Exechia capillata* n. sp.

Male. Length 3.5 mm. Thorax and abdomen dark brown, humeri and small spot on venter of segments 2 and 3 faintly yellow; hypopygium yellow (Fig. 52). Fore metatarsus and tibia subequal in length. Wings hyaline, tinged with brown (Fig. 177).

Female. Like the male but venter yellow, this color extending up on the sides along anterior margin of each segment.

Kingston, R. I. (J.B.), May; Dinwiddie Creek and Torrey's Lake, Wyo. (W.M.W.) Sept.; Stanford Univ., Cal. (J.M.A.) Feb.; Ithaca, N. Y. May, Sept. Bred from *Collybia dryophila*.

22. *Exechia obediens* n. sp.

Male. Length 3.5 mm. Thorax and abdomen brown; hypopygium dusky yellow (Fig. 53). Fore metatarsus about 1.04 longer than the tibia. Wing hyaline, tinged with brown (Fig. 178). Stanford Univ. (J.M.A.) Feb.; Berkeley, Cal., (W.M.W.) March.

23. *Exechia attrita* n. sp.

Male. Length 3.5 mm. Thorax and abdomen brown, lateral margins of the mesonotum paler, posterior end of abdomen darker brown, humeri and venter and sides of segment 2 and 3, yellow; hypopygium dusky yellow (Fig. 54). Fore metatarsus and tibia subequal in length. Wings hyaline, tinged with brown (Fig. 179).

Female. Like the male but venter yellow, this color extending up on the sides along anterior margin of each segment. Wis., (W.M.W.) Aug.; R. I. (J.B.), Nov.; Ithaca, N. Y. Aug.; Orono, Me., Nov.; Forest Hill, N. J.; (Weidt), Apr., Nov.

24. *Exechia repanda* n. sp.

Male. Length 3 mm. The mesonotum, scutellum and metanotum brown, the humeri, pleura and lateral margins of the mesonotum yellow. Abdomen dark brown; the venter of segments 1, 2 and 3, the posterior part of the sides of 2, the greater part of the sides of 3, and hypopygium (Fig. 55) yellow. Fore metatarsus but little if any longer than the tibia. Wings hyaline, tinged with brown (Fig. 180). Ithaca, N. Y. Aug.

Female. Like the male but with abdomen like that of the female of *E. attrita*. Boston, Mass., (C.W.J.). Sept.

25. *Exechia absurda* n. sp.

Male. Length 3 mm. Thorax brown, pleura a little paler brown, humeri yellow. Abdomen dark brown, the venter of segment 2, venter and sides of 3, and hypopygium yellow (Fig. 56). Fore metatarsus about 1.1 longer than the tibia. Wing hyaline, tinged with brown (Fig. 181). Ithaca, N. Y. and Orono, Me. Nov.

26. *Exechia casta* n. sp.

Male. Length 3.5 mm. Thorax and abdomen brown, the latter darker brown, humeri yellow; hypopygium yellow (Fig. 57). Fore metatarsus about .95 as long as the tibia. Wings hyaline tinged with brown (Fig. 182).

Female. Like the male but the anterior margin of each segment on the venter and sides sometimes faintly tinged with yellow. Black Rock Creek, Dubois, Dinwiddie Creek, Hunter's Creek, Wyoming (W.M.W.), Sept.

27. *Exechia analis* Adams.

Wash. Carnegie Inst. Pub. 67. 37. 1907. (*Mycetophila*).

Male. Length 4 mm. Head brownish black, mouth parts and basal joints of antennæ yellow, remaining joints of antennæ light brown. Thorax brownish black, lateral margins of mesonotum and pleura brownish-yellow, mesonotum with short yellow pile and black bristly hairs, the latter distributed along the sides; scutellum with an apical pair of strong bristles. Abdomen brownish-black, apex yellow, with short yellow pile. Coxæ yellow, femora light yellow, tibia and tarsi becoming darker distally; the front tibiæ without bristles except the apical ones, the second are provided with a row of indistinct setulæ and the hind tibiæ have rather strong bristles; front tarsi a little over twice as long as front tibiæ; middle tarsi above twice as long as middle tibiæ, hind tarsi 1.5 times as long as their tibiæ. Wings nearly hyaline, Rs and anterior branch of media divergent distally, furcation of media in front of base of Rs, furcation of cubitus considerably posterior to it. Halteres light yellow. "Mayfield Cave, Ind."

The type specimen, which was sent to me by Dr. Adams for examination, has an hypopygium resembling that of *E. attrita*, the longer process very similar to that shown in fig. 54, but

the postero-ventral angles of the hypopygial sclerite are produced almost as far as the tips of the articulated processes in the form of slender, blunt almost spine-like lobes, in *E. analis*.

27. Genus *Dynatosoma* Winnertz. E

Verh. Zool.-bot. Ges. Wien. XIII, 947, 1863.

Front broad, anterior margin not produced into a triangle, vertex high; ocelli usually 2 in number, large; the middle one, when present, very minute; Thorax pubescent, margins setose. scutellum semicircular with setose margin. Legs stout, hind femora each usually with 3 ranges of stout setæ on extensor surface. Costa not extended beyond tip of Rs; subcosta nearly half as long as the basal cell R and ends in R₁; branches of the cubitus widely divergent; first anal long but incomplete, strong.

Table of Species.

- a. Cubitus forks distad of the basal section of the radial sector; wing with distinct spots; 3 ranges of setæ on each hind tibia.
 - b. Thorax largely and abdomen, fuscous; hypopygium (Fig. 58).
 - 1. *nigrina* n. sp. ✓
 - bb. Thorax largely and basal portion at least of abdomen, yellow, hypopygium (Fig. 59).
 - 2. *fulvida*.
- aa. Cubitus forks proximad of the base of radial sector; wing unspotted; 2 ranges of setæ on each hind tibia.
 - b. Thorax black.
 - 3. *thoracica*.
 - bb. Thorax fulvous.
 - 4. *placida* n. sp.

1. *Dynatosoma nigrina* n. sp. ✓

Male. Length 5 mm. Head fuscous, antennæ subfuscous basal 3 or 4 joints and palpi yellowish. Thorax fuscous, the narrow posterior angles of the mesonotum and the humeri, widely, reddish yellow; hairs and setæ yellow. Abdomen blackish, the hind margins of the segments narrowly and indistinctly, yellow; hairs, appressed, yellow; hypopygium (Pl. 7, fig. 19, Genera Insectorum, Fasc. 93) and (Fig. 58). Coxæ yellow, middle and hind ones each with an oval black spot near the apex on the outer side; femora and tibiæ, yellow, the bases of all and the apices of middle and hind femora, black, tip of hind tibia black; tarsi brownish. Wing grayish hyaline, marked with a large brown central spot, a preapical fascia and a faint grayish apical margin (Fig. 183). Halteres yellow. Mass.

2. *Dynatosoma fulvida* Coquillett.

Canad. Ent. XXVII. 201. 1895.

Male. Length 4.5 mm. to 7 mm. Head dusky yellowish with darker transverse fascia, or wholly brown, antennæ subfuscous, 4 or 5 basal joints and palpi yellowish. Thorax reddish yellow, hairs yellow, setæ reddish yellow to brown. Abdomen reddish yellow, the 3 posterior segments largely subshining blackish with yellow margins; hypopygium (Fig. 59). Coxæ and legs yellow, the tarsi and the tips of the hind femora brownish. Wings grayish hyaline, marked with a large brown central spot, a preapical fascia and a fainter grayish apical margin (Fig. 184). Halteres yellow. Capens, Me. (C.W.J.), July; Friday Harbor, Washington (J.M.A.), May; Ithaca, N. Y.

Female. Similar to the male, but the abdomen with less dark coloring, in 2 specimens wholly reddish yellow. Selkirk Mts. (J.C.B.); Friday Harbor, Washington (J.M.A.), May; Ithaca, N. Y., June.

3. *Dynatosoma thoracica* Coquillett.

Proc. U. S. Nat. Mus. XXIII. 598. 1901.

Male and female. Length 4 to 5 mm. Head black, upper part of face, base of antennæ and the mouth parts yellow, thorax and scutellum black, subopaque; abdomen dark brown, the first 4 segments partly or wholly reddish yellow; legs yellow, tarsi brownish, anterior tibiæ each bearing about 4 downwardly directed spines at apex of outer side, the anterior spine the longest, nearly half as long as the tibial spur; many of the lateral bristles of middle and hind tibia much longer than greatest diameter of the tibiæ, those on inner side of the middle tibiæ shorter than greatest diameter of the latter; wings grayish hyaline, tinged with yellowish along the costa, cubitus forking about opposite the crossvein. Halteres yellow. "Ill., N. H." An examination of the type shows that there are 2 ranges of setæ on each hind tibia.

4. *Dynatosoma placida* n. sp.

Male. Length 5.5 mm. Head fulvous, frontal groove dusky, ocelli 2, face and palpi pale yellow, antennæ fuscous, 4 or 5 basal joints yellowish, setæ on the upper eye margin, brown. Thorax fulvous, mesonotum with 3 indistinct pale brown vittæ, setæ pale brown; pleura, scutellum, and metanotum yellow:

scutellar setæ brown. Abdomen fulvous, shining, each segment with a brown triangular "saddle," broadest posteriorly, indistinctly divided along the median line; hypopygium shining fulvous, prominent, superior claspers slender, curved, each with curved black spine at the tip and a long stout subapical seta. Coxæ and legs yellow, tarsi darker, hind tibiæ each with 2 ranges of setæ. Wings yellow hyaline, veins fulvous (Fig. 215). Kearney, Ont., (M. C. Van Duzee), July.

28. Genus *Opistholoba* Mik.

Wien. Ent. Zeit. X. 87, 1891.

Ocelli three, laterals contiguous to the eye margin, middle one very minute; hypopygium very large and conspicuous, much broader than the abdominal segments, husk-like (Fig. 60). Ventral posterior margin of the sixth abdominal segment in the female provided with a row of long setæ which project beyond the tip of the abdomen. In other respects like *Mycetophila*.

Opistholoba ocellata Johannsen.

Genera Insectorum, Fasc. 93, 126. 1909.

Male. Length 3 mm. Head shining black, antennæ fuscous, 4 or 5 basal joints and the palpi yellow. Thorax and abdomen deep brown or black; large quadrangular spot on each humerus, a minute spot on each posterior angle of the mesonotum, and the large hypopygium, yellow. Hypopygium when seen from the side, subtriangular, folded under the abdomen, nearly reaching the middle of the fourth abdominal segment (Fig. 60. See also pl. 7, fig. 18, Genera Insectorum, Fasc. 93).

Coxæ and legs yellow, the tarsi slightly darker, tips of hind femora blackish; middle tibiæ each with one short and two long setæ on the flexor surface. Wings grayish hyaline, with a central spot and a short preapical fascia, cubitus forks slightly proximad of the fork of the media (Fig. 185). Halteres yellow. Ithaca, N. Y. May. Aug.

29. Genus *Epicypa* Winnertz.

Verh. Zool-bot. Ges. Wien. XIII. 909, 1863.

Head round, flattened in front, the anterior margin of the thorax produced over it; front broad, its anterior margin pro-

duced into a triangle which descends to the base of the antennæ; ocelli small, laterals contiguous to the eye margin, the middle one minute, placed in a groove at the base of the frontal triangle. Legs strong, with tibial setæ which on the hind legs are noticeably longer than the diameter of the tibia at the widest part. Costa more or less produced beyond the tip of R_s ; fork of the cubitus under or proximad of the fork of the media, the angle at the base very acute, the branches slightly diverging, anal strong but incomplete.

Table of Species.

- a. Wings unspotted, hyaline.
 - b. Cubitus forks proximad of the prominal end of the crossvein by the length of this vein.
 - c. Humeri dusky yellow; costa produced. *1. pulicaria.*
 - cc. Humeri black; middle ocellus absent; costa produced but little if at all. *Mycetophila anomala* n. sp.
 - bb. Cubitus forks under the crossvein. *Mycetophila vitrea.*
- aa. Wing marked with brown.
 - b. Mesonotum shining, unicolored, blackish; a single spot on the wing. *2. punctum.*
 - bb. Mesonotum yellowish with 3 dark subconfluent stripes, or sometimes confluent, leaving only the humeri and anterior margin yellow; wing with central spot and broad preapical spot which may be rather faint, rarely wanting. *3. trinotata.*

1. Epicrypta pulicaria Loew.

Berlin. Ent. Zeitschr. XIII, 151, 1869.

Female. Length 2.5 mm. Black, moderately shining, clothed with short appressed dusky pile. Head black, palpi yellow, antennæ fuscous, the scape and the immediate base of the flagellum reddish. Coxæ and legs pale yellow, the tibial spurs and the fore tarsi fuscous, the other tarsi subfuscous; middle tibiæ each with 2 setæ on flexor surface. Wings yellowish gray hyaline, the costal cell and part of cell R_1 yellowish. Halteres yellow. "Pa."

After examining the type at Cambridge, I may add that the humeri are dusky yellow, R_1 and R_s curved parallel to the costa, the cell between quite narrow, cubitus forks the length of the crossvein proximad of the proximal end of the latter.

2. *Epicrypta punctum* Stannius.

Observ. de Myc. 16. 1831 (*Mycetophila*).

Male and female. Length 3 mm. Head black, subshining. antennæ brown, scape, at least the second joint, and the palpi reddish yellow, hairs yellowish. Thorax and abdomen brownish black with appressed yellow hairs, hypopygium dusky yellowish; longer hairs at the bases of the wings and the 4 scutellar setæ, black. Coxæ and legs reddish yellow, tips of hind femora, the spurs and the tarsi brown; middle tibiæ each with 1 shorter and 2 longer setæ on the flexor surface; fore metatarsus very slightly shorter than the tibia, subequal in the female; the entire tarsus about 2.4 the tibia in length; soles of the 2-4 fore tarsal joints slightly swollen in the female. Wing hyaline, tinged with brownish yellow, with a brownish central spot; costa noticeably produced beyond the tip of Rs; the base of Rs, the forks of media and cubitus nearly equidistant from the base of the wing, or the last very slightly proximad; second anal long, though incomplete, somewhat curved up at the end. Halteres yellow. "Europe and N. J." Auburndale, Mass. (C.W.J.) Aug.

3. *Epicrypta trimotata* Staeger.

Kröyer: Tidsskr. 242. 1840 (*Mycetophila*).

Male and female. Length 3 mm. Head and antennæ brown, scape and palpi yellow, hairs yellow. Mesonotum reddish yellow with 3 subconfluent brown stripes, or in the male, brown, with only yellow humeri, pleura and metanotum brown, scutellum brown in the male, yellow with brown lateral spots in the female, setæ black, hairs appressed, yellow. Abdomen dark brown with appressed yellow hair, hypopygium yellowish (Fig. 61). Coxæ and legs yellow, hind margins and tips of hind femora, the spurs and the tarsi brown; fore metatarsus and tibia subequal in length, the entire tarsus about 2.2 longer than the tibia, middle tibiæ each with a short and 2 long setæ on flexor surface. Wings yellowish hyaline, with a brown central spot, an elongate pale brownish preapical cloud, a pale brown spot behind the fork of the cubitus, and a yellow costal cell (Fig. 186). Excepting the central spot the markings are sometimes quite faint. Halteres yellow. Mass., (W.M.W.); N.

Adams, Mass., (C.W.J.). June; Ithaca, N. Y., June-Aug.: Kingsmere, Canada, (Dr. Hewitt). The Canadian specimens were reared from *Enteridium spendens*.

30. Genus *Mycothera* Winnertz.

Verh. Zool.-bot. Ges. Wien XIII. 913, 1863.

Front broad, its anterior margin produced into a triangle the apex of which reaches to the base of the antennæ; ocelli small, the laterals contiguous to the eye margin, the minute middle one placed in a groove at the base of the frontal triangle. Anal segments and forceps small. Tibial setæ strong, the middle tibia frequently with one or more on the flexor surface, fore metatarsus shorter than the tibia. Costa not produced beyond the tip of Rs, cubitus forks proximad, at, or distad of the base of Rs, the branches convergent or parallel toward their apices. The 3 ocelli distinguish this genus from *Mycetophila*, the converging or parallel branches of the cubitus separate it from *Epicypta*. The larvæ live in decaying wood and fungi.

Table of Species.

- a. Cubitus forks as far distad of the crossvein as the length of the cell Cu₁.
 - b. Thorax black; wings hyaline, with a brown fascia which fills apex of cell R₁ and crosses Rs. 1. *analis*.
 - bb. Thorax brownish or yellowish; hypopygium (Fig. 62). 2. *paula*.
- aa. Cubitus forks proximad, under, or but slightly distad of the fork of the media.
 - b. Cubitus forks distinctly proximad of the proximal end of the crossvein; middle tibia with 2 or 3 setæ on the flexor surface; apical wing cloud diffuse; abdomen reddish, indistinctly fasciate. 3. *paradoxa* n. sp.
 - bb. Cubitus forks only slightly proximad, at, or distad of the proximal end of the crossvein.
 - c. Preapical wing cloud diffuse, its margin ill defined or wanting; or if more distinct, then middle tibia each with 1 setæ on flexor surface.
 - d. Middle tibiæ each with two or three setæ on flexor surface; females. 4. *Mycothera* sp.
 - dd. Middle tibiæ each with 0 or 1 seta on flexor surface.
 - e. Thorax reddish or reddish brown with sub fucous dorsum; abdomen reddish brown indistinctly fasciate.
 - f. No apical wing cloud; hypopygium (Fig. 64). 5. *mitis* n. sp.

- ff. With diffuse apical wing cloud; hypopygium (Fig. 65). 6. *recta* n. sp.
 ee. Dark brown or blackish species; hypopygium (Fig. 66).
 f. Wing with hyaline spot under Rs (Fig. 191). 7. *fenestrata*.
 ff. Wing not marked thus. 7a. var. *praenubila* n. var.
 cc. Preapical wing cloud sharply defined with an anterior spur which fills out the apex of cell R_1 ; middle tibiae each with 2 or 3 setae on flexor surface. 8. *impellans* n. sp.

1. *Mycothera analis* Coquillett.

Proc. U. S. Nat. Mus. XXIII. 598, 1901. (*Exechia*).

Male. Length 2 mm. Head black, the face, mouth parts and base of antennae yellow; thorax black slightly polished, a small triangular yellow spot below the humeri; abdomen dark brown, the third and fourth segments, except hind margin of the latter, yellow; legs yellow, the broad apices of hind femora dark brown, tarsi brownish yellow; wings hyaline, a brown fascia fills the apex of cell R_1 and crosses cell Rs. "Delaware Water Gap, N. J."

2. *Mycothera paula* Loew.

Berlin. Ent. Zeitschr. XIII. 151, 1869.

trifasciata Coq. Invert. Pacifica I. 18. 1904. (*Mycetophila*).

Male and female. Length 2.2-2.5 mm. Head fuscous, antennae brown, the 3 or 4 basal joints and the palpi yellow. Mesonotum reddish brown, opaque, the front and lateral margins and front angles yellow; hairs yellow, setae brown; scutellum yellow, pleura and metanotum brown. Abdomen black, genitalia (Fig. 62) yellow. Legs yellow, tips of hind femora, of middle and hind tibiae, and the larger part of the tarsi, brown; middle tibiae each with 2 setae on flexor surface. Wing grayish hyaline with 3 brown fasciae (Fig. 187). Halteres yellow.

I have seen the types of *paula* and *trifasciata*, and they do not appear to differ. "Middle States," "Stanford Univ., Cal.;" Carbondale Landing, Columbia River, B. C., (J.C.B.); Ithaca, N. Y., Aug., Oct.; Brookside, N. J. (Weidt).

3. *Mycothera paradoxa* n. sp.

Female. Length 3 mm. Head and antennæ dark brown, the scape and palpi yellow. Thorax reddish yellow, dorsum with faint indication of 3 dark stripes, the scutellum, center of metanotum and the lower margin of the pleura, brown; hairs yellow; setæ blackish. Abdomen reddish yellow, each segment with a broad, indistinct, subfuscous transverse fascia; ovipositor yellow (Fig. 63). Coxæ and legs yellow, tarsi brown; middle tibiæ each with 2 or 3 setæ on the flexor surface. Wings grayish hyaline, with a central spot and a diffuse preapical cloud; cubitus forks distinctly proximad of the proximal end of the crossvein (Fig. 188). Halteres yellow. Ithaca, N. Y.

4. *Mycothera* sp.

Female. Length 3 mm. Thorax and abdomen brown, humeri yellow. Cubitus forks about under the fork of the media. In other respects like *M. paradoxa*. Black Rock Creek, Wyo., Price Co., Wis., (W.M.W.); Ithaca, N. Y., Aug. In one N. Y. specimen the thorax is yellow with 3 distinct brown stripes, and the apical wing cloud faint, in another the apical wing cloud is entirely wanting.

5. *Mycothera mitis* n. sp.

Male. Length 3 mm. Head and antennæ brown, scape and palpi yellow. Thorax reddish brown, the center of the mesonotum, scutellum and metanotum fuscous, humeri yellowish, setæ black. Abdomen dark reddish brown, hind margin of each tergite indistinctly yellow, venter and hypopygium yellow (Fig. 64). Coxæ and legs yellow, tarsi brown; middle tibiæ each with a single seta on flexor surface. Wing hyaline, central spot pale brown, no preapical cloud (Fig. 189). Halteres yellow. Wisconsin, July.

6. *Mycothera recta* n. sp.

Male. Length 3 mm. Head and thorax brown, scape and palpi yellow. Thorax reddish brown, the center of the mesonotum, the scutellum and metanotum brownish, humeri yellow, setæ black. Abdomen dark reddish brown, darker posteriorly, hind margins of segments and venter indistinctly yellowish, hypopygium dusky yellow (Fig. 65). Coxæ and legs yellow, tarsi and tips of hind femora brown; middle tibiæ each with

a single seta on flexor surface. Wing hyaline, central spot and diffuse preapical cloud pale brown (Fig. 190). Halteres yellow. Ithaca, N. Y. (Aug.).

Female. A female from the same locality with dark brown thorax, yellow humeri, brown abdomen with yellow venter and yellow margins on the tergites, may belong here.

7. *Mycothera fenestrata* Coquillett.

Inv. Pacifica, I. 19. 1905 (Mycetophila).

Male. Length 3 mm. Head, antennæ, thorax and abdomen dark brown, scape, palpi, humeri and hypopygium (Fig. 66) dusky yellow. Coxæ and legs yellow, the tarsi, tips of coxæ, of middle and hind tibiæ and of hind femora brownish, middle tibiæ each with one seta on the flexor surface. Wings hyaline with a brown spot over the crossvein, apical third of wing smoky less distinct posteriorly, a clear spot behind Rs below tip of R₁ (Fig. 191). Halteres yellow. Buffalo, N. Y.; Moscow, Id. (J.M.A.); "Stanford Univ., Cal."

7a. *Mycothera fenestrata*, var. *praenubila* n. var.

Male. Only the anterior part of the preapical wing cloud is distinct, the wing marks appearing as in *M. recta*.

Female. Thorax more reddish brown, with dark vittæ feebly indicated. Friday Harbor, Wash. (J.M.A.); Price Co., Wis. (W.M.W.); Alabama; Ithaca, N. Y., Forest Hill, N. J. (Weidt), April.

8. *Mycothera impellans* n. sp.

Male. Length 2.5-3 mm. Head and antennæ dark brown, the scape and palpi yellow. Thorax brownish; the mesonotum, scutellum and metanotum fuscous, setæ brown. Abdomen brownish, each tergite darker posteriorly, but the extreme margin and the venter pale; hypopygium yellow (Fig. 67). Coxæ and legs yellow, tarsi and tips of hind femora, brown; middle tibia with 2 or 3 setæ on flexor surface. Wings hyaline, a brown central spot, and a brown sharply defined preapical spot, a spur of which is produced into the tip of cell R₁; apical margin of wing very faintly smoky (Fig. 192). Halteres yellow.

Female similar, but abdomen more uniformly brown. Mt. Ranier, Longmire's Spring, Wash., (J.M.A.) July, Aug.;

North Mt., Pa., North Adams, Mass., (C.W.J.) June; Lavallette, N. J., (Vierick) May; Ithaca, N. Y. ! August.

Var. a. Female. Length 3.7 mm. Thorax dark brown, humeri and lateral margins of the mesonotum reddish yellow; abdomen blackish. Mt. Constitution, Orcas, Id. Wash. (J.M.A.) July.

31. Genus *Mycetophila* Meigen.

Illiger's Mag. II. 263, 1803; Klass, I, 90, 1804.

Fungivora Meigen, Nouv. Class. 16. 1800, (without type).

Head placed low on the thorax so that in profile it makes a continuous curve with the thorax, ocelli 2, placed close to the eye margin. Legs stout, tibial setæ stout, those of the hind legs longer than the greatest diameter of the tibia. Costa not produced; subcosta short, incomplete; cubitus forks nearly under the fork of the media, its branches nearly parallel apically; anal vein incomplete. The larvæ, which are commonly found in decaying wood and in fungi, possess transverse rows of microscopic ambulacral setulæ upon the margins of the segments of the venter.

The following table should be considered only as a guide; and if a specimen be found which cannot be placed, it must not be assumed undescribed without making a careful study of the hypopygium, the most reliable single character. Color and wing markings, and possibly even the number of the setæ of the middle tibia are subject to occasional variation.

Table of Species.

- a. Three ranges of setæ on the extensor surface of the hind tibia, and with 2 or more setæ on flexor surface of middle tibia.
- b. Wing without a distinct cloud, though the petiole of the media itself may be darkened.
 - c. Thorax subopaque, humeri and posterior lateral angles yellow; female. 1. *extincta*.
 - cc. Thorax shining black; hypopygium (Fig. 69). 2. *jucunda* n. sp.
- bb. Wing with distinct spots or cloud.
 - c. Wing with a single spot which covers the crossvein.
 - d. With 2 setæ on flexor surface of middle tibia; hypopygium (Fig. 70). 3. *perita* n. sp. ✓
 - dd. With 3 setæ on flexor surface of middle tibia; hypopygium (Fig. 68). 1. *extincta*.

- cc. Wing with preapical cloud or fascia in addition to the central spot.
- Reinholdia* *fulvipes* d. Scutellum black, humeri yellow; females.
- e. Preapical wing cloud does not reach vein M_1 . 4 *M. sp.*
- ee. Preapical wing cloud crosses M_2 . 5. *M. sp.*
- dd. Robust species with scutellum largely yellow.
- e. Cubital cell broad, branches of Cu slightly divergent. 6. *procera*.
- ee. Cubital cell moderate (Fig. 196), branches of Cu sub-parallel apically.
- f. Wing with about 4 spots; one on each of M and Cu; hypopygium (Fig. 71). 7. *fastosa* n. sp.
- ff. No distinct spots on media and cubitus; female. 8. *M. sp.*
- aa. Two ranges of setae on extensor surface of each hind tibia.
- b. With no setae on flexor surface of middle tibia.
- c. Wing immaculate; last joint of palpus spatulate; hypopygium (Fig. 72). 9. *punctata*. ✓
- cc. With wing spots.
- d. With but a central wing spot.
- e. Thorax dark brown, with not more than 4 fine setae near apex of hind tibia on inner lateral side; hypopygium (Fig. 73). 10. *falcata* n. sp. ✓
- ee. Reddish brown or yellow thorax; 5 or more fine setae on inner lateral side of hind tibia apically.
- f. Thorax yellow; apically half of inner lateral side of hind tibia ciliate; hypopygium (Fig. 74). 11. *mutica*. ✓
- ff. Thorax reddish brown, brown dorsum and pleura; hypopygium (Fig. 75). 11a *mutica* var. a.
- Maculosa* *shufeldti* dd. With 2 wing spots; branches of the cubitus slightly divergent; hypopygium (Fig. 76). 12. *lenis* n. sp.
- bb. With one or more setae on flexor surface of middle tibia.
- c. With but one seta on flexor surface of middle tibia.
- d. Wing without distinct spot. 17. *dolosa*.
- dd. Wing with one or more spots.
- e. Wing with discal spot and a preapical cloud which does not pass the media. 13. *monochaeta*.
- ee. The apex of the wing more or less clouded, or other spots present.
- f. Apex of wing brown, an oval hyaline spot below Rs . *Mycothera fenestrata*.
- ff. Apex not distinctly clouded, a spot on cell M_2 distinctly separated from the preapical spot. 15. *quatuornotata*.
- cc. With 2 or more setae on flexor surface of middle tibia.
- d. Wing without distinct spots.
- e. With a distinct thickening of the apical half of the basal section of the media; fore metatarsus longer than its tibia. St. Vincent Isl. 16. *nodulosa*.

- ee. Wing not so marked.
 - f. Mesonotum opaque dark brown. St. Vincent Isl. 17. *dolosa*.
 - ff. Mesonotum polished black, branches of cubitus diverging.
 - g. Cubitus forks under the crossvein. 18. *vittrea*. ✓
 - gg. Cubitus forks proximad of the proximal end of the crossvein. 19. *anomala* n. sp.
- dd. Wing with one or more spots.
 - e. Wing with only one spot which covers the crossvein.
 - f. Fore metatarsus longer than its tibia; mesonotum yellowish red. St. Vincent Isl. 20. *insipiens*.
 - ff. Fore metatarsus not longer or shorter than the tibia.
 - g. Thorax and abdomen blackish; length 2.3 mm; hypopygium (Fig. 78). 21. *bipunctata*.
 - gg. Thorax shining brown, lateral margins and a spot on center of scutellum yellow; length 3.7 mm. 22. *inculta*.
 - ee. Wing with 2 or more spots or clouds.
 - f. Abdomen yellowish, intermediate segments each with a large blackish spot on each side leaving a median yellow stripe; sometimes largely black with only a narrow median vitta; thorax with 3 subconfluent stripes, scutellum yellow.
 - g. Superior forceps of hypopygium rather broad and short, with a blunt black spine (Fig. 80). 23. *scalaris*. ✓
 - gg. Superior forceps somewhat elongate (Fig. 82). 23a. *scalaris* var. a.
 - ff. Abdomen not marked thus.
 - g. Tibial spurs whitish abruptly tipped with black; thorax reddish yellow, moderately shining with 3 dark stripes; besides the central spot a series of 3 spots on the wing forming an irregular pre-apical fascia. 34. *sigmoides*.
 - gg. Tibial spurs not distinctly black tipped.
 - h. Middle tibiae each with 3 or 4 setae on flexor surface.
 - i. Fore tarsi slightly swollen below, joints 2, 3 and 4 wider than 1.
 - j. Ochraceous, shining, thorax with subconfluent dusky stripes; abdominal segments with wide yellow posterior margins. 24. *pinguis*.
 - jj. Dusky species, humeri yellow.
 - k. Incisures of abdomen yellow; hypopygium (Fig. 81). 25. *foecunda* n. sp.
 - kk. Abdomen wholly dark; hypopygium (Fig. 91). 26. *imitator* n. sp.

- ii. Fore-tarsi robust, but not swollen below.
- j. Preapical wing cloud arises at the costal margin proximad of the tip of R_1 .
- k. Preapical wing cloud reaches apex of R_s .
 - 1. Length 5 mm; hypopygium (Fig. 83). 27. *perlonga* n. sp.
 - 2. Length 3 mm. 26. *imitator* n. sp.
- kk. Preapical wing cloud does not reach apex of R_s ; length 2.5 mm. 28. *polita*.
- jj. Preapical wing cloud does not cover tip of vein R_1 .
- k. Hind margin of abdominal segments broadly and distinctly yellow. 29. *fallax*.
- kk. Hind margins of segments not broadly and distinctly yellow.
 - 1. The superior forceps with about 6 blunt black spines and one longer curved one on each limb (Fig. 84). 30. *pectita* n. sp.
 - 2. The limbs of the forceps with fewer spines.
- m. Preapical wing cloud produced to unite with a gray cloud on posterior margin; superior forceps with 3 or 4 blunt spines and a longer curved one (Fig. 85). 31. *lassata* n. sp.
- mm. Preapical wing cloud abbreviated; superior forceps with one short blunt spine on each limb. 32. *lenta* n. sp.
- hh. Middle tibiae each with 1 or 2 setae on flexor surface, rarely with an additional smaller one above.
- i. Fork of the cubitus noticeably retracted proximad of the base of the crossvein; thorax reddish, slightly darker dorsally, margins of abdominal segments broadly yellow; length 4 mm. 33. *propinqua*?
- ii. Fork of cubitus not retracted when thorax is reddish.
- j. Species 4.5 mm long; preapical fascia extends to Cu_1 , apical wing cloud present; coxae and femora each with brownish spot; inner lateral side of hind tibiae each ciliate to near the middle; hypopygium (Fig. 87). 35. *fatua* n. sp.
- jj. Smaller species.

k. Cubitus forks slightly proximad of the proximal end of the crossvein; thorax and abdomen dull brown; hypopygium (Fig. 88). 36. *edura* n. sp.

kk. Cubitus forms under or distad of the fork of the media.

l. Preapical wing cloud diffuse, longitudinal in position, covers apices of veins R_1 and Rs ; hypopygium (Fig. 89).

37. *exusta* n. sp.

ll. Preapical wing cloud transverse in position, at least at proximal end.

m. Preapical wing cloud reaches M_2 .

n. Thorax reddish with brown vittæ; preapical wing cloud reaches hind margin; hypopygium (Fig. 90).

38. *jugata* n. sp.

nn. Thorax dark brown.

o. Wing cloud reaches hind margin; scutellum dark brown; hypopygium (Fig. 91).

26. *imitator* n. sp.

oo. Wing cloud passes vein M_2 .

p. Scutellum with yellow center and apex; hypopygium (Fig. 92).

39. *extenta* n. sp.

pp. Scutellum black. 40. *M.* sp.

mm. Preapical wing cloud does not reach vein M_2 .

n. Middle and hind coxæ brown outwardly; proximal end of preapical cloud covers R_1 , apex of wing with paler cloud; hypopygium (Fig. 93).

41. *edentula* n. sp.

nn. Middle and hind coxæ yellow; preapical wing cloud smaller; apex of wing not clouded; posterior angles of thorax yellow.

o. Scutellum yellow, sides darker.

42. *trichonota*.

oo. Scutellum black.

p. Fore tarsi swollen; preapical wing cloud oblique; hypopygium (Fig. 94).

42a. *trichonota* var. a. ✓

pp. Fore tarsi not swollen; wing cloud broader; hypopygium (Fig. 95).

43. *socia* n. sp.

AUXILIARY TABLE TO SPECIES OF MYCETOPHILA sens. lat.

The species included in this table I cannot recognize. Some of them do not appear to belong to the genus *Mycetophila* as now restricted.

- a. Wing with one or more spots.
 - b. With a single spot which covers the crossvein.
 - c. Head blackish, disk of thorax with 3 confluent blackish vittæ. 44. *discoidea*.
 - cc. Head and thorax clay yellow. 45. *ichneumonea*.
 - bb. With 2 wing spots.
 - c. Head and thorax black; length 5 mm. 46. *bifasciata*
 - cc. Head and thorax yellowish to brown.
 - d. Length 2.5 mm; abdomen reddish brown. 47. *parva*.
 - dd. Length 3 mm or over; abdomen reddish brown, segments with yellow margins.
 - e. Preapical wing cloud broader but little longer than the central spot; halteres yellow; length 4 mm. 33. *propinqua*.
 - ee. Preapical wing cloud much larger than the other.
 - f. Halteres white; head brown; length 3.5 mm. 48. *laeta*.
 - ff. Halteres and head tawny; length 3 mm. 49. *contigua*.
- aa. Wing unspotted.
 - b. Head black, thorax tawny with 3 broad black stripes, abdomen wanting. 50. *plebeia*.
 - bb. Otherwise.
 - c. Body brown, thorax with tawny stripe "forked in front on its hinder part," scutellum and breast yellow, abdominal segments yellow at base. 51. *obscura*.
 - cc. Abdominal segments yellow at apex.
 - d. Head brown, thorax ferruginous, reddish brown on disk. 52. *despecta*
 - dd. Head and mesonotum dusky, (*Allodia*?).
 - e. Halteres whitish, knob dusky before the tip. 53. *nubila*.
 - ee. Halteres yellowish white. 54. *sericea*.

1. *Mycetophila extincta* Loew.

Berlin Ent. Zeitschr. XIII. 152. 1869.

Female. Length 2.5 mm. Head fuscous, opaque, the face and mouth parts yellowish. Scape yellow, flagellum blackish; its base sometimes yellow. Thorax fuscous, subopaque, humeri and posterior angle, luteous. Scutellum wholly fuscous black. The first 5 abdominal segments fuscous, the venter and apex of the abdomen yellow. Coxæ and legs pale yellow, the tip of the hind femora fuscous, tarsi subfuscous, middle tibiæ with 3 setæ on flexor surface, tarsi slender, the hind metatarsus subequal in length to the remaining joints; wing veins luteous

with very indistinct spot on the petiole of the media. There are 3 ranges of setæ on the extensor surface of the hind tibia in the type specimen at Cambridge. "Middle States;" N. Adams, Mass. (C.W.J.) June.

Male. Length 2.5 mm. Thorax brown, subshining, anterior lateral margins yellow; hairs yellowish, setæ brown. Abdomen brown, venter yellowish; hypopygium with short, broad appendages (Fig. 68). Coxæ and legs yellow, hind femora tipped with brown; fore metatarsus about .8 as long as the tibia; middle tibiæ each with 3 setæ on flexor surface, hind tibiæ each with 3 ranges of setæ on extensor surface; hind metatarsus about 7-8 as long as the remaining joints. Wing yellowish hyaline, with rather indistinct central spot (Fig. 193). Haltere, yellow, Auburndale, Mass., (C.W.J.) Aug.

2. *Mycetophila jucunda* n. sp.

Male. Length 2.5 mm. Head shining black, scape, palpi and base of first flagellar joint yellow, flagellum fuscous. Thorax shining black, small post humeral depression yellow, hairs dusky yellow to brown, setæ brown. Abdomen black; hypopygium small, globular (Fig. 69). Coxæ and legs yellow, hind femora tipped with black, fore metatarsus about .85 as long as its tibia; middle tibia with 3 setæ on flexor surface; hind tibiæ each with 3 ranges of setæ on extensor surface, hind metatarsus about .8 as long as the remaining 4 joints. Wing yellowish hyaline, unmarked (Fig. 194). Halteres yellow. Ithaca, N. Y., August.

3. *Mycetophila perita* n. sp. ✓

Male. Length 3.0 mm. Head black; scape, basal joint of flagellum and palpi yellow; flagellum fuscous. Thorax shining brownish black, the humeri widely and the posterior lateral angles narrowly yellow, hairs and setæ brown; 4 scutellar setæ. Abdomen brown, venter and the posterior margins of the intermediate segments on the sides, yellow; hypopygium with one pair of appendages elongate (Fig. 70). Coxæ and legs yellow; fore metatarsus about 1-16 shorter than the tibia, middle tibiæ each with 2 setæ on flexor surface, hind tibiæ each with 3 ranges on extensor surface. Wing yellowish hyaline, with central spot (Fig. 195). Milwaukee, Wis., (W.M.W.), June; Wild Cat Canyon, Costa Co., Cal. (J.C.B.) Nov.; Ithaca, N. Y.!

July. *minim, 25*

4. *Mycetophila* sp.

Female. Length 3 mm. Resembles the foregoing, but the yellow abdominal fasciæ are wider, distinct also on the dorsum. The hind femora are broadly tipped with black, the fore metatarsus is about 3-4 the length of the tibia, middle tibiæ each with 3 longer and one shorter setæ on flexor surface; fore tarsal joints 2, 3, and 4 are much broader than 1. Wing with 2 distinct spots, the preapical spot fills apex of cell R_1 but does not reach vein M_1 . Eastport, Maine, July.

5. *Mycetophila* sp.

Female. Length 2.5. Resembles No. 4 but the thorax is subopaque, abdomen is largely brown; the fore tarsi are not swollen, middle tibiæ each with 3 setæ on flexor surface, preapical wing spot is more slender and crosses M_2 , and the fork of the cubitus is narrower. Price Co., Wis. (W.M.W.) August.

6. *Mycetophila procera* Loew.

Male. Length 5 mm. Head dusky reddish yellow; antennæ blackish, scape and base of flagellum luteous. Thorax luteous, with 3 dorsal stripes, the angles of the scutellum, pleural spots and the metanotum blackish; pile yellow, longer hairs and the setæ black. Abdomen blackish, the posterior margin of each segment narrowly, and the lateral margins widely yellow. Coxæ and legs yellow, slender, tips of hind femora black, flexor surface of each middle tibia with 4 or 5 setæ, tarsi long and slender, the metatarsus and the following joints of hind foot subequal. Besides the central spot there is a series of fuscous spots from the tip of cell R_1 across the wing, and the apical third of the posterior margin is gray; veins strong, the branches of the cubitus widely separated and slightly divergent. "New York."

There are three ranges of setæ on the extensor surface of the hind tibiæ in the type specimen.

7. *Mycetophila fastosa*. n. sp.

Male. Length 4 mm. Head blackish, dusky yellow on the sides; scape, palpi, and base of flagellum yellowish, flagellum blackish. Thorax subshining blackish, the wide humeral and posterior lateral angles, a spot in front of the scutellum, the scutellum, except the sides, yellow; hairs pale, setæ black,

abdomen brownish black, anteriorly more brownish, anterior part of venter pale brown; hypopygium (Fig. 71). Coxæ and legs yellow, the trochanters, a large spot on flexor surface near the base of all femora, tips of middle and hind femora and of middle and hind tibiæ, blackish, tarsi brown; fore metatarsus about 1-16 shorter than the tibia, middle tibiæ each with 2 setæ on flexor surface; hind tibiæ each with 3 ranges of setæ. Wing yellowish hyaline with central spot and several spots forming a broken preapical fascia (Fig. 196). Halteres yellow. Ithaca, N. Y.!

Female. Segments of abdomen narrowly margined with yellow, with an indication of a median longitudinal stripe on segment 2. Riverton, N. J., Delaware W. Gap, N. J. (C.W.J.). *ll*

8. *Mycetophila* sp.

Female. Length 3.5-4 mm. Similar to the foregoing but the preapical wing fascia is unbroken and does not reach M₁. In an Ithaca, N. Y. specimen, the thorax is wholly shining black, the hind margins of the intermediate abdominal segments narrowly yellow and the fore tarsi slightly swollen.

A specimen from Mt. Constitution, Washington, with wing marking as above is similar to *M. fastosa* but the disk of the thorax is brown. Another specimen from the same locality is similar to this but the narrow hind margins of the intermediate abdominal segments, the anterior part of the venter and narrow median dorsal stripes on segments 2 and 3 are yellow.

9. *Mycetophila punctata* Meigen. ✓

Syst. Besch. I, 264. 1818.

Male and female. Length 4 to 6 mm. Ochraceous; the apical half of the antennæ, the center of the mesonotum, the "saddles" of each abdominal tergite, and the tarsi usually dusky yellow or in occasional, usually southern specimens, brownish; sometimes wholly yellow. Apical joint of palpus oval (Fig. 55, Plate I, Part I). Fore metatarsus and tibia subequal; no setæ on flexor surface of middle tibiæ, hind tibiæ each with 2 ranges on extensor surface; both middle and hind tibiæ each ciliate with a range of finer setæ on inner lateral surface, which are uniform in size on hind tibiæ and extend to above the middle; hind coxæ with a tuft of fine slightly

curved setæ near the tip on the hinder wide; hypopygium (Fig. 72. See also Pl. 7, fig. 17, Genera Insectorum, Fasc. 93). Wing yellow tinged, without spots (Fig. 56, Plate I, Part I and Fig. 245, Part III). Bred from several species of fleshy fungi. Our commonest species. Alab., Id., Mass., Maine, N. C., N. J., N. Y., R. I., Tenn., Tex., Wis., Wyo.

✓ 10. *Mycetophila falcata* n. sp.

Male and female. Length 2.5 mm. Head, thorax and abdomen dark brown; scape, palpi, and hairs yellow, setæ black: superior forceps of the hypopygium elongate, curved. (Fig. 73) Coxæ and legs yellow, tarsi brownish; fore metatarsus about 1-16 shorter than the tibia; middle tibiæ without setæ on flexor surface; hind tibiæ each with 2 ranges on extensor surface; hind metatarsus nearly .8 as long as all of remaining joints. Wings yellowish hyaline, with a central spot (Fig. 197). Halteres yellow. Ithaca, N. Y.!

A male specimen from Mt. Constitution, Id., differs in having humeri and scutellum yellowish; a female from the same locality differs from the female from N. Y. only in being slightly paler brown.

11. *Mycetophila mutica* Loew. ✓

Berlin. Ent. Zeitschr. XIII. 152. 1869.

Female. Length 2.7 mm. Head reddish yellow, front subcinereous, face, mouth parts, scape and base of flagellum yellow; flagellum brownish. Thorax opaque reddish yellow, scutellum similarly colored. Abdomen fuscous, the sides of the last 4 segments widely yellowish. Coxæ and legs pale yellow, tarsi slender, subfuscous, the fore tarsus twice as long as the tibia, the hind metatarsus a little longer than the remaining joints taken together; middle tibiæ without setæ on flexor surface. Wing with a central spot. "Middle States." Hind tibiæ each with 2 ranges of setæ on extensor surface; inner lateral side ciliate to the middle.

Male. Differs in having abdomen wholly brown; hypopygium (Fig. 74). N. C., (W.B.); N. Y.; Selkirk Mts., B. C. (J.C.B.); Wash. (J.M.A.); Wis., and Wyo. (W.M.W.).

Var. a. Differs in having disk of mesonotum brownish, a slight difference in the form of the inferior forceps (Fig. 75).

and in having fewer cilia on inner lateral side of hind tibia. Wash. (J.M.A.).

12. *Mycetophila lenis* n. sp.

Male. Length 4 mm. Head brown, yellowish at the sides; scape, base of flagellum and palpi yellow, flagellum brown. Thorax yellow, a spot, 3 subconfluent vittæ on dorsum, center of the metanotum, and the pleura in part, brown; hairs pale, setæ dark. Abdomen brown, the anterior margin of each segment very narrowly, the posterior margin more widely and the venter, yellow; hypopygium (Fig. 76). Coxæ and legs yellow, tips of middle and hind femora narrowly dark brown, tarsi brownish; fore metatarsus about 7-8 as long as the tibia; middle tibiæ without setæ on the flexor surface; hind tibiæ each with 2 ranges of setæ on extensor surface; hind metatarsus about .9 as long as the remaining joints taken together. Wing yellowish gray hyaline, with 2 large dark brown spots; branches of cubitus distinctly divergent (Fig. 198). Halteres yellow. Eastport, Maine, (C.W.J.), July.

13. *Mycetophila monochaeta* Loew.

Berl. Ent. Zeitschr. XIII. 158. 1869.

Male and female. Length 2.7-3 mm. Head fuscous black, opaque, mouth parts subfuscous, scape chiefly yellow, flagellum fuscous black, the base yellowish. Thorax and abdomen fuscous black, mesonotum opaque, sides pollinose, humeri sometimes yellowish; genitalia pale. Coxæ and legs pale yellow; middle tibiæ each with one seta on flexor surface; hind metatarsus subequal in length to the remaining joints taken together. Wing cinereous with a central spot and a short preapical fascia. "D. C."

14. *Mycetophila fenestrata* Coquillett.

An examination of the type in the National Museum shows that this species is a member of the genus *Mycothera*. See page 83 for the description.

15. *Mycetophila quatuornotata* Loew.

Berlin. Ent. Zeitschr. XIII. 157. 1869.

Female. Length 4.2 mm. Head dusky yellow, front largely fuscous; antennæ fuscous black, scape and base of flagellum

yellow. Mesonotum yellowish with 3 broad black vittæ dilated anteriorly; hairs yellowish, setæ black; pleura and metanotum fuscous black; scutellum yellow, lateral angles blackish. Abdomen fuscous black, moderately shining, the last segment except the base, the posterior margins of the remaining segments, a median stripe on segment 2 and the bases of 3 and 4 yellow: lamellæ of the ovipositor ochraceous. Coxæ and legs pale yellow, tips of posterior femora black, flexor surface of each middle tibia with a single setæ; hind metatarsus shorter than joints 2, 3 and 4 taken together. Central wing spot large: preapical spot fills out the apex of cell R_1 from tip of vein R_1 and reaches Cu_1 interrupted over cell M_1 ; a more or less distinct gray cloud behind the cubitus opposite the central spot. "Maryland;" Hemlock Falls, N. J. June.)))

16. *Mycetophila nodulosa* Williston.

Trans. Ent. Soc. London. 264. 1896.

Male. Length 2.5 mm. Antennæ brownish-yellow, the basal joints yellow; longer than the head and thorax together. Front and face light ochraceous yellow; palpi brown. Mesonotum light ochraceous yellow, lightly white pruinose on the sides, and with blackish and yellow hair; pleura brownish-yellow. Abdomen reddish-brown; pubescence chiefly black. Legs yellow, the coxæ and femora light yellow, the broad hind femora at the tip brown. Front tibiæ about 1-3 of the length of the tarsi and shorter than the metatarsi; middle tibiæ with spines on the inner side; hind tibiæ with 2 rows of spines on the outer side. Wings lightly tinged, the outer part of the first section of the media, the crossvein and the base of the second section of R_s thickened, forming a straight spindle-shaped mass. "St. Vincent Isl."

17. *Mycetophila dolosa* Williston.

Trans. Ent. Soc. London. 264. 1896.

Male. Length 2.5-3 mm. Antennæ brown, somewhat compressed, the basal joints yellowish. Front and face brown, mesonotum dark brown, opaque, with a thin yellowish sheen in some reflections. Abdomen dark brown or black, the venter yellow. Pleura yellowish-brown. Coxæ and legs light yellow, the tarsi appearing blackish from the hair; front tibiæ less than

half of the length of the tarsi and a little longer than the metatarsi; hind tibiæ with 2 rows of spines on the outer side; middle tibiæ with spines on the inner side; hind metatarsi nearly as long as the following joints together. Wings tinged with brownish. "St. Vincent Isl."


Mr. William R. Thompson who kindly examined the co-type (?) specimens in the St. Vincent collection at Cornell University writes ".....The specimen bearing the label has one seta on the flexor surface of the middle tibia The second specimen placed beside the first has the tarsus of the first leg practically equal to (only very slightly longer than) the tibia of that leg; it has 2 setæ on the flexor side of the middle tibia "

✓ 18. *Mycetophila vitrea* Coquillett.

Length 2.5 mm. Black, the face, mouth parts, bases of antennæ, halteres and legs, yellow, apices of tarsi brown. Body polished, the hairs yellowish, bristles black. Middle tibiæ each bearing a very long and a short bristle on the inner side. Wing hyaline, tinged with yellowish and gray along the costa, cubitus forks opposite the crossvein. "N. J., B. C."

This species and *M. anomala* resemble *Epicrypta* in general appearance and in venation.

19. *Mycetophila anomala* n. sp.

Male and female. Length 3 mm. Head, thorax and abdomen brownish black, shining, venter sometimes narrowly yellowish. Scape, palpi, coxæ, legs, halteres and hypopygium (Fig. 77) yellow; flagellum, tips of hind femora and tarsi brownish; tibiæ each with 2 setæ on flexor surface. Wings grayish yellow hyaline; fork of cubitus proximad of the base of the crossvein (Fig. 199). Halteres yellow. Price Co., Wis. (W.M.W.) August. 

20. *Mycetophila incipiens* Williston.

Trans. Ent. Soc. London. 264. 1896.

Female. Length 2.5 mm. Antennæ about as long as the thorax, yellow; brownish toward the end; front and face yellow. Mesonotum yellowish-red. Abdomen reddish-yellow; each segment broadly brown on its posterior part. Legs, including the coxæ light yellow; front tibiæ about 1-3 of the

length of the tarsi and shorter than the metatarsi; middle tibiæ with 2 large and one small bristle on the inner side; middle and hind tibiæ with spines on the outer side; hind metatarsi distinctly shorter than the remaining joints of the tarsi together. Wings tinged with yellowish; a small brownish cloud on the basal section of the radial sector. "St. Vincent Isl."

21. *Mycetophila bipunctata* Loew. ³

Berlin. Ent. Zeitschr. XIII. 152. 1869.

Female. Length 2.4 mm. Head fuscous, opaque, face and mouth parts pale yellowish; scape and sometimes base of flagellum, yellow; flagellum blackish. Thorax fuscous black, humeri luteous; scutellum and abdomen fuscous black, the extreme tip of the latter and the venter, yellow. Coxæ and legs pale yellow, tips of hind femora fuscous, tarsi subfuscous; middle tibiæ each with 2 setæ on flexor surface; hind metatarsus about equal in length to the remaining 4 joints taken together. Wing with a small central spot. "Wis." There are 2 ranges of setæ on the extensor surface of the hind tibiæ in the type specimen.

Male and female. The female as above, the male like the female but the middle tibia usually bears a small setæ above the larger ones on the flexor surface and the humeri and venter are usually not much paler than the other parts; hypopygium (Fig. 78). s. 7a

Orono, Maine, Nov.; Ithaca, N. Y., June-Aug.; N. J., Wis., Wyo., (W.M.W.), Sept.

22. *Mycetophila inculta* Loew.

Berlin. Ent. Zeitschr. XIII. 153, 1869.

Female. Length 3.7 mm. Head brown, face and mouth parts luteous, antennæ brownish, scape and the very base of the flagellum luteous. Mesonotum brown, shining, hairs appressed, yellowish; setæ black; pleura fuscous; scutellum dark brown with a median luteous spot. Abdomen fuscous or blackish, each segment except the first yellow margined, dilated into triangles on the sides; anal lobes brownish at the base, ochraceous apically. Coxæ and legs yellowish, tips of hind femora blackish, tarsi subfuscous, hind metatarsus about equal in length

to the 3 following joints taken together; middle tibiae each with 2 setae on flexor surface. Wing with a central spot, apex of wing posteriorly more grayish. "Middle States."

Male and female. The female as above though the humeri are more yellowish. The male differs in having less yellow on the abdomen and the middle tibiae each with 3 setae on the flexor surface. Hypopygium (Fig. 79). Chicago, Ill., (W.M.W.), May; Ithaca, N. Y., May-Aug.; R. I. (J.B.); Wis., (W.M.W.).

23. *Mycetophila scalaris* Loew. ✓

Berl. Ent. Zeitschr. XIII. 154. 1869.

Male and female. Length 3 mm. Head luteous, antennae subfuscous, scape and the base of the flagellum yellowish. Mesonotum yellowish, moderately shining, with 3 dark, sometimes confluent stripes; hairs yellow, setae black; scutellum yellow, lateral angles black; anterior part of pleura yellow, posterior part and the metanotum fuscous. First abdominal segment yellow, margin dusky, sometimes with median yellow line, segments 2, 3 and 4 each with a large blackish spot on each side which rarely may meet on the dorsum; segments 5 and 6 with yellow hind margin, apex of abdomen and venter yellowish. Coxae and legs yellow, hind femora with black tips, tarsi subfuscous, middle tibia with 3 setae on flexor surface; hind metatarsus about as long as the remaining joints taken together. Wing with a central spot and a preapical fascia which fills the apex of cell R_1 and extending obliquely proximad into cell R_s , below this the veins of the media are indistinctly surrounded by a grayish cloud. "Middle States." The robust hind tibiae each have 2 ranges of setae on the extensor surface; hypopygium (Fig. 80). The hypopygium of Var. a. differs in being more elongate (Fig. 82). Reared from *Boletus* and *Polyporus* Ithaca, N. Y., June-Oct.; Lawrence, Kas., (E.S.T.) July; Brookside, N. J., Selkirk Mts., B. C. (J.C.B.); Vt., (C.W.J.) Woods Hole, Mass.; Wis., (W.M.W.). []

24. *Myctophila pinguis* Loew.

Berlin. Ent. Zeitschr. XIII. 153. 1869.

Female. Length 4 mm. Front brownish, antennae subfuscous, scape and the very base of the flagellum yellowish.

Thorax ochraceous, shining, mesonotum with 3 confluent stripes, hairs yellow, blackish on the dark stripes, setæ black; pleura in part fuscous. First abdominal segment wholly fuscous black, the remaining segments fuscous black each margined anteriorly and posteriorly with yellow, venter yellowish tinged. Coxæ and legs yellowish, hind femora with black tips; middle tibiæ each with 3 setæ on flexor surface, fore tarsi moderately thickened, hind metatarsus about as long as the 3 following joints taken together. Wing with central spot and a preapical fascia which fills the apex of cell of R_1 and extends into cell R_5 beyond this are 2 small very indistinct clouds, one on each branch of the media. "English River;" "Maine;" Wis. (W.M.W.) July.

25. *Mycetophila foecunda* n. sp.

Male and female. Length 3 mm. Head, thorax and abdomen shining fuscous black, the scape, palpi, humeri and lateral posterior margins of mesonotum narrowly, small spot on apex of scutellum and very narrow hind margin of intermediate abdominal segment, yellow; hypopygium long, with acute forceps (Fig. 81). Coxæ and legs yellow, bases of hind coxæ, a spot under middle and hind femora, the tips of the middle femora, the apical 1-4 of each hind femur, dark brown, tarsi brownish; fore metatarsus less than 7-8 of tibia; middle tibiæ each with 3 or 4 setæ on flexor surface, hind metatarsus nearly .8 as long as the 4 remaining joints taken together, fore tarsi of female swollen below. Wing hyaline, with a central spot, a faint cloud behind the fork of the cubitus, and a preapical fascia which fills the apex of cell R_1 and extends to Cu_1 though broken and very faint beyond M_1 (Fig. 200). Halteres yellow. In some specimens the coxæ and under side of the femora are not marked and the preapical wing cloud obsolete beyond M_1 . Juliaette, Id., (J.M.A.); Orono, Me., Ithaca, N. Y.! (Nov.). Reared from *Polyporus* sp.

26. *Mycetophila imitator* n. sp.

Male and female. Length 3 mm. Similar to *M. foecunda* but differs in being subopaque, in lacking the abdominal fasciæ and in the structure of the hypopygium. Head, thorax, and abdomen black, subopaque, palpi, scape and small humeral spot yellowish; hypopygium short (Fig. 91). Coxæ and legs

yellow, tips of hind femora and of hind tibiæ blackish, spot on under side of hind femora near base, and tarsi brownish; fore metatarsus nearly .75 as long as its tibia; middle tibiæ each with 3, rarely 2, setæ on flexor surface, hind tibiæ each with 2 ranges of setæ on extensor surface; hind metatarsus nearly .8 as long as the remaining joints taken together. Wings grayish hyaline with central spot and preapical fascia which reaches hind margin, narrowest on cell M_1 (Fig. 201). Halteres yellow. Ithaca, N. Y. and Orono, Me. Nov.

27. *Mycetophila perlonga* n. sp. ✓

Male. Length 5.5 mm. Head dusky reddish yellow, front and antennæ dark brown, scape and palpi yellow. Thorax dusky reddish yellow, mesonotum with 2 wide dark brown stripes; pleura and metanotum dark brown. Abdomen dark brown, paler at the incisures; hypopygium (Fig. 83). Coxæ and legs yellow, tips of hind femora black; fore metatarsus about 7-8 as long as the tibia; middle tibiæ each with 3 or 4 setæ on flexor surface; hind tibia each with 2 ranges of setæ on the extensor surface. Wing yellowish gray hyaline, costal cell more yellow, central spot and large preapical fascia dark brown, posterior apical margin tinged with brown (Fig. 202). Halteres yellow. N. Y. August.

28. *Mycetophila polita* Loew.

Berlin. Ent. Zeitschr. XIII. 158. 1869.

Male. Length 2.5 mm. Head black, face and mouth parts luteous; antennæ fuscous black, scape and base of flagellum yellowish. Thorax shining black, humeri and the tips of the posterior lateral angles of the mesonotum luteous. Abdomen shining black, segments 5 and 6 each with yellow basal fasciæ, hypopygium luteous, minute. Coxæ and legs pale yellow, extensor surface and tip of each hind femur black; middle tibiæ each with 3 setæ on flexor surface. Wing with small central spot and a preapical fascia which arises on the costa before the tip of R_1 and reaches M_1 ; directly opposite this the veins M_1 and M_2 are gray clouded. "N. Y." There are 2 ranges of setæ on the extensor surface of each hind tibia in the type specimen.

A female specimen from Ithaca, N. Y., does not differ. The humeri are widely yellow.

✓ 29. *Mycetophila fallax*. Loew.

Berl. Ent. Zeitschr. XIII. 156. 1869.

Male. Length 3 mm. Fuscous black, subopaque, humeri, scutellum except the angles and the hind margin of each abdominal segment pale; thoracic hairs pale, setæ black. Middle tibiæ each with 3 setæ on the flexor surface. Wing with a central spot, and a preapical arcuate fascia which extends from the tip of cell R_1 to vein M_1 , the spots being larger and darker than in *M. trichonota*, and R_1 ends nearer the apex of the wing. "Middle States." The hind tibiæ each have 2 ranges of setæ on the extensor surface in the type specimen.

Var. a. Female. Length 3.7 mm. Thorax dark brown, humeral spot large; middle tibiæ each with 4 setæ; preapical wing fascia followed by a pale brown spot on each of M_1 and M_2 , thus making an interrupted fascia extending beyond M_2 . This specimen may represent a distinct species. Stanford Univ., Cal., March.

30. *Mycetophila pectita* n. sp.

Male. Length 3.5 mm. Head and antennæ brown, scape, base of flagellum and palpi yellow. Thorax subopaque dusky yellow, the 3 subconfluent stripes of mesonotum, sides of scutellum, posterior parts of pleura and the metanotum brown, hairs pale, setæ dark. Abdomen dark brown, hypopygium (Fig. 84). Coxæ and legs yellow, tips of hind femora and tarsi brown; fore metatarsus about .85 as long as the tibia. middle tibiæ each with 3 setæ on flexor surface, hind tibiæ each with 2 ranges on extensor surface. Wing yellowish hyaline, with central spot, and oblique preapical fascia distinct to the middle of cell R_s beyond which it is very faint apparently reaching M_2 (Fig. 203). Halteres yellow. Selkirk Mts., B. C. (J.C.B.) and Friday Harbor, Wash. (J.M.A.).

31. *Mycetophila lassata* n. sp.

Male. Length 3.5 mm. Similar to *M. pectita* in coloring and structure, but differs in having the preapical wing cloud produced covering the posterior apical margin of the wing (Fig. 204); and in the form of the hypopygium (Fig. 85). Felton, Cal. (J.C.B.) May.

32. *Mycetophila lenta* n. sp.

Male. Length 3.5 mm. Similar to *M. pectita* but differs in having the mesonotum subshining, and in the form of the hypopygium (Fig. 86). The thorax of the Maine specimen is blackish with the humeri broadly yellow and with spots on posterior angles of mesonotum, a spot in front of the scutellum and the center of the scutellum, yellow; wing as figured (Fig. 205). Price Co., Wis. (W.M.W.) Aug.; Orono, Maine! Oct., (Bred from Mushrooms); N. C.

33. *Mycetophila propinqua* Walker.

List of Diptera, Brit. Mus. I. 96. 1848.

Length 4 mm. Head tawny, very thickly clothed with yellow hairs; palpi tawny; eyes black; feelers tawny, brown towards the tips; chest reddish tawny, with a short brown stripe on each side; hind chest pale tawny; its three reddish lobes covered with a white bloom; abdomen reddish brown, clothed with yellow hairs; hind borders of the segments tawny; legs yellow; tips of the thighs tawny; shanks darker than the thighs; feet brown, tawny toward the base; wings pale tawny especially towards the fore border, and adorned with two brown bands, of which the one nearest the wing tip is continued along the fore border of the wing to the tip, and is a little broader, but hardly longer or more irregular than the other; veins tawny; poisers yellow. "Nova Scotia."

A female specimen from N. Y. which appears to be this species has 2 setæ on flexor surface of each middle tibia and 2 ranges on extensor surface of each hind tibia.

34. *Mycetophila sigmoides* Loew.

Berlin. Ent. Zeitschr. XIII. 156. 1869.

Male. Length 4 mm. Head yellowish, front darker, antennæ fuscous black, the scape and the very base of the flagellum yellowish. Thorax yellowish moderately shining, mesonotum with 3 fuscous vittæ; hairs yellowish, setæ black; scutellum yellow, lateral angles fuscous, setæ black; pleura with fuscous, metanotum wholly fuscous. Abdomen yellowish, the segments with fuscous markings, hypopygium small, yellow. Coxæ and legs pale yellow; all femora with an oblong dark spot below,

near the base, apex of each hind femur black; middle tibiae each with 2 or 3 setae on flexor surface; tibial spurs whitish distinctly tipped with black; tarsi dusky; hind metatarsus about as long as the 3 following joints taken together. Wing with central spot with a preapical fascia formed of 3 fuscous spots arranged like the letter S, the first and largest extends from the apex of cell R_1 to vein M_1 . "Middle States."

There are 2 ranges of setae on the extensor surface of the hind tibiae in the type specimen.

35. *Mycetophila fatua* n. sp.

Male. Length 4.5 mm. Head and antennae brown, the scape, palpi and very base of flagellum yellow. Thorax dull yellowish, mesonotum with 3 subconfluent dull dark brown vittae, pleura, metanotum and sides of scutellum brown, setae black. Abdomen dark brown, the intermediate segments with yellow hind margins; hypopygium (Fig. 87). Coxae and legs yellowish, the central portion of the coxae, flexor surface of the femora near the base, tips of hind femora and of tibiae and the apical part of the tarsi, brown, fore metatarsus about 7-8 as long as the tibia; middle tibiae each with 2 setae on flexor surface; hind tibiae each with 2 ranges on extensor surface; hind metatarsus 7-8 as long as the 4 remaining joints. Wings grayish hyaline, costal cell yellowish; with central spot, a large brown preapical more or less interrupted fascia, a faint cloud at apex of the wing and another behind the fork of the cubitus (Fig. 206). Halteres yellow. Moscow, Idaho (J.M.A.).

Female. Similar, but thorax a little paler brown, and the preapical wing fascia more broadly interrupted in cell M_1 . Vollmer, Idaho.

36. *Mycetophila edura* n. sp.

Male. Length 2.5 mm. Head and antennae grayish brown, the palpi, scape and base of flagellum yellow. Thorax and abdomen dark brown, subopaque, the humeri and the narrow posterior angles of the mesonotum yellow, hairs yellow, setae black; hypopygium (Fig. 88). Coxae and legs yellow, the extensor surface of the hind femora and the tarsi brownish; fore metatarsus about .8 of tibia in length, middle tibiae each with 2 setae on flexor surface, hind tibiae each with 2 ranges of setae on extensor surface, hind metatarsus about 1-1.6 shorter than

the 4 remaining joints. Wings grayish hyaline with central spot and a preapical spot which reaches from apex of Rs to proximad of tip of R_1 , transversely not quite reaching M_1 (Fig. 207). Halteres yellow. Ithaca, N. Y.!

Female. A single specimen from Price Co., Wis. (W.M.W.) differs in having the dorsum of the thorax and base of the abdomen paler brown.

37. *Mycetophila exusta* n. sp.

Male. Length 3 mm. Head and antennæ brown, palpi, scape and base of flagellum yellow. Thorax brown, humeri yellow. Abdomen dark brown, hypopygium (Fig. 89). Coxæ and legs yellow, tarsi darker, fore metatarsus about .8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface, hind tibiæ each with 2 ranges of setæ on extensor surface. Wings grayish hyaline with central spot and an elongate brown diffuse preapical spot longitudinal in posterior extending from tip of Rs to proximad of tip of R_1 ; apical third of wing grayish with an oval hyaline spot below Rs (Fig. 208). Halteres yellow. Mass., June; Id., (J.M.A.) Sept., Cal. (J.C.B.) May, Nov.

This species is very similar to *Mycothera fenestrata* in wing markings.

38. *Mycetophila jugata* n. sp.

Male. Length 3 mm. Head and antennæ grayish brown, palpi, scape and base of first flagellar joint reddish yellow. Thorax reddish yellow, the 3 wide vittæ of mesonotum, the pleura, and metanotum dark reddish brown, hairs yellow, setæ black. Abdomen dark brown, hairs yellow, appressed, hypopygium (Fig. 90). Coxæ and legs yellow, tips of hind femora blackish, tarsi dusky; fore metatarsus about .8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface, hind tibiæ each with 2 ranges of setæ on extensor surface; hind metatarsus subequal in length to the 4 following joints taken together. Wings grayish hyaline with a large brown central spot, a large paler cloud opposite this behind the cubitus, a preapical fascia which extends from the costa to the hind margin of the wing where it is paler, constricted in the middle (Fig. 209). Halteres yellow. Felton, Calif. (J.C.B.).

39. *Mycetophila extenta* n. sp.

Male and female. Length 3.5 mm. Head, antennæ, thorax, and abdomen subshining fuscous, the scape, base of flagellum, palpi, humeri, center of scutellum and the hind angles of the mesonotum narrowly dusky yellowish; hairs pale, thoracic setæ black; hypopygium (Fig. 92). Coxæ and legs yellow, tips of hind femora black, tarsi dusky; fore metatarsus about 7-8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface; hind tibiæ each with 2 ranges of setæ on extensor surface; hind metatarsus nearly .8 as long as the 4 following joints taken together. Wing grayish hyaline, with central spot and a preapical arcuate fascia which extends from the tip of R_s to M_2 , narrowest in cell M_1 (Fig. 210). Halteres yellow. Ithaca, N. Y. April.

40. *Mycetophila* n. sp.

Female. Length 3.5 mm. Similar to the foregoing, but thorax more shining, the paler parts lighter yellow, no yellow spot on the scutellum, venter yellowish, and fore tarsi more distinctly swollen. N. Y., August.

41. *Mycetophila edentula* n. sp.

Male. Length 2.7 mm. Head, antennæ, thorax and abdomen fuscous, the scape, base of flagellum, palpi, small spot on humerus, dusky yellow; hypopygium (Fig. 93). Hairs pale. setæ black. Legs and fore coxæ yellow, middle and hind coxæ fuscous outwardly, fore metatarsus less than .8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface; hind tibiæ each with 2 ranges of setæ on extensor surface, hind metatarsus about 1-16 shorter than the following 4 joints taken together. Wing grayish hyaline, with central spot, a preapical fascia which fills apex of cell R_1 arising proximad of tip of vein R_1 and extends transversely slightly beyond vein M_1 ; apex of wing margined with gray (Fig. 211). Halteres yellow. Selkirk Mts., Rogers pass, B. C. (J.C.B.) July.

Female. Fore coxæ brown, otherwise as above. Hampton, N. H., (S. A. Shaw), Oct.

42. *Mycetophila trichonota* Loew.

Berlin. Ent. Zeitschr. XIII. 155. 1869.

Male. Length 2.8 mm. Head fuscous, opaque, face, mouth parts, scape and base of flagellum yellowish, antennæ fuscous

black. Thorax fuscous black, subopaque, humeri, posterior angles, spot in front of scutellum, and the scutellum except the sides, luteous; hairs yellow, setæ black. Abdomen fuscous black, the lateral and posterior margins of each segment except the first yellowish; the small hypopygium yellow. Coxæ and legs pale yellow, tips of hind femora black; middle tibiæ each with 2 setæ on flexor surface, hind metatarsus about equal to the following 4 joints taken together; tarsi more or less dusky. Wing with rather large central spot and a preapical fascia which extends from the tip of the cell R_1 obliquely proximad into cell R_s but not reaching vein M_1 ; below this fascia the veins M_1 and M_2 are clouded with gray. "D. C." There are 2 ranges of setæ on the extensor surface of each hind tibiæ in the type specimen.

Var. a. Male. Thorax subshining dark brown, scutellum wholly brown, fore tarsi slightly swollen, otherwise as above; hypopygium (Fig. 94). Ithaca, N. Y., July, August.

43. *Mycetophila socia* n. sp.

Male and female. Length 3 mm. Thorax and abdomen subshining brownish black, humeri, posterior angles of mesonotum and narrow hind margins of the segments of the abdomen yellow; hypopygium (Fig. 95). Fore metatarsus about 7-8 as long as the tibia; fore tarsi not swollen. Wing with brown central spot and an oval grayish preapical spot (Fig. 212). Otherwise as in *M. trichonota*. Ithaca, N. Y., August.

44. *Mycetophila discoidea* Say.

Journal Ac. Sc. Phil. VI. 153, 1829.

Thorax pale with a blackish disk, wings with a fuscous spot. Head blackish, antennæ whitish, at tip blackish; thorax pale honey-yellow, disk blackish owing to 3 vittæ of that color being confluent into one, wings hyaline, with a fuscous spot on the connecting nervures; tergum blackish, somewhat sericeous; poisers whitish; feet whitish, with blackish tarsi; abdomen whitish at base. Length more than 1-10 inch. Belongs to Meigen's first division of the genus. Indiana.

45. *Mycetophila ichneumonca* Say.

Journal Ac. Sc. Phil. III. 16. 1823.

Female. Length 3 mm. Clay yellow, abdomen brown dorsally. Belongs to Meigen's first division. Antennæ paler, head more dusky clay yellow. Mesonotum more dusky, pleura paler clay yellow. Segments

2 to 4 of abdomen, brown above. Wing yellowish, crossveins broadly margined with brown. Legs pale clay yellow, tarsi brownish. "Pa."

46. *Mycetophila bifasciata* Walker.

List. of Dipt. I. 96. 1848.

Head and chest black, clothed with short tawny down; eyes and feelers black, the latter ferruginous at the base; scutcheon ferruginous; abdomen brownish black; hind borders of the segments tawny; feet, thighs at the base and at the tips, and tips of the hind hips, brown; wings somewhat gray, clouded with brown below the fore border about the middle and near the tip, which is also indistinctly clouded with gray; veins brown; poisers tawny. Length of the body 5mm. St. Martin's Falls, Albany River, Hudson's Bay.

47. *Mycetophila parva* Walker.

List. of Dipt. I. 97. 1848.

Head brown; eyes black, palpi tawny; feelers brown; yellow at the base; chest reddish brown, varied with tawny on each side; breast yellow; abdomen reddish brown; hips and thighs yellow, tips of the latter brown; shanks dull tawny; feet brown; wings slightly gray, with two brown spots beneath the fore border; the one nearest the tip of the wing is larger and more irregular than the other; veins brown, poisers yellow. Length of the body 2.5 mm. St. Martin's Falls, Albany River, Hudson's Bay.

48. *Mycetophila lacta* Walker.

List. of Dipt. I. 97. 1848.

Body thickly clothed with yellow hairs; head brown; eyes black; palpi tawny; feelers dull tawny yellow at the base; chest bright tawny; its hind part pale reddish brown and varied with yellow; abdomen reddish brown, with five yellow bands along the sutures of the segments; hips and thighs pale yellow; tips of hind thighs brown; shanks pale tawny; feet brown, wings slightly tawny, especially towards the fore border, and adorned with two brown bands of which the one nearest to the wing tip is much larger and more irregular than the others. Veins tawny; poisers white. Length of body 3.5 mm. Nova Scotia.

49. *Mycetophila contigua* Walker.

List. of Dipt. I. 96. 1848.

Body clothed with short yellow hairs; head tawny; eyes black, palpi tawny; feelers brown, tawny at base; chest reddish brown, yellow on each side in front. Abdomen reddish brown; hind border of each segment pale yellow; legs pale yellow; tips of hind thighs brown; feet and tips of shanks dull tawny; wings pale tawny adorned with two brown bands, of which the one nearest to the wing tip is much longer and more irregular than the other; veins dark tawny; poisers bright tawny. Length of the body 3 mm. Nova Scotia.

50. *Mycetophila plebeia* Walker.

List of Dipt. I. 100. 1848.

Head black; palpi tawny; feelers black, yellow at the base; chest tawny with three broad black stripes which occupy nearly all the back and are united behind; the middle one is much in advance of the other two; abdomen wanting; hips and thighs pale yellow; shanks dull pale tawny; feet brown; wings slightly gray; veins brown; poisers yellow. Length of body 3.5 mm. St. Martin's Falls, Albany River, Hudson's Bay.

51. *Mycetophila obscura* Walker.

List of Dipt. I. 101. 1848.

Body brown; head yellow beneath; eyes black; palpi yellow; feelers brown, yellow at the base; chest with a tawny stripe forked in front on its hinder part; scutcheon and breast yellow; abdominal segments yellow at the base; legs yellow; hips very pale yellow; feet dull yellow; wings colourless; veins brown; poisers yellow. Length of the body 3 mm. St. Martin's Falls, Albany River, Hudson's Bay.

52. *Mycetophila despecta* Walker.

List of Dipt. I. 101. 1848.

Head and palpi brown; eyes black; feelers brown, yellow at the base; chest ferruginous, reddish brown on the disk; abdomen brown; ventral segments and hind borders of dorsal segments ferruginous; legs yellow; feet brown; wings colourless; veins tawny; poisers yellow. Length of body 3 mm. St. Martin's Falls, Albany River, Hudson's Bay.

53. *Mycetophila nubila* Say.

Journal Ac. Sc. Phil. VI. 153. 1829.

Dusky; wings immaculate; feet whitish. Inhabits Indiana. Body dusky, brownish; antennæ first and second joints yellowish; wings hyaline; immaculate; poisers whitish, capitulum dusky before the tip; abdomen slender, gradually enlarging to the tip; tergum with the tips of the segments pale; anal segments pale; feet whitish, dusky towards the tips; spines 1-3 the length of the first tarsal joint. Length 3-20 inch. Belongs to Meigens 5th Division.

54. *Mycetophila sericea* Say.

Long's Exped. App. 365. 1824.

Male and female. Length over 4 mm. Scape yellow, flagellum brown; palpi yellow. Head blackish with yellowish sheen. Pleura yellowish, mesonotum fuscous with whitish silky sheen. Abdomen deep brown, posterior margins of the segments yellow broadened at the sides in the form of triangular spots. Wing slightly yellowish with brown veins. Course of veins as in Plate 9, Fig. 18, in Meigen's Syst. Besch. I. Halteres and legs pale yellowish with brown tarsi and spurs. "N. W. Terr." Perhaps *Allodia*.

32. Genus *Sceptonia* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 1863.

Front broad, the anterior margin produced into a triangle the apex of which reaches the base of the antennæ; lateral ocelli contiguous to the eye margin, middle one minute, in a groove at the base of the triangle. Anterior margin of thorax produced over the head so that in profile making a continuous curve with the head. Legs strong, hind tibial setæ longer than the greatest diameter of the tibia. The branches of the radius curved parallel to the costa, the cells between very narrow, the costa therefore apparently produced beyond the tip of Rs; subcosta short; cubitus simple; anal long but incomplete. The larvæ are found in decaying wood and in fungi.

† *Sceptonia nigra* Meigen.Syst. Besch. I. 270. 1818. (*Mycetophila*).

Male and female. Length 2.2-2.5 mm. Head, thorax and abdomen shining black. Antennæ brown, scape sometimes yellowish; palpi yellow. Hairs pale shimmering, setæ dark. Hypopygium yellowish (Fig. 96). Coxæ and legs yellowish, the bases of the hind coxæ, the apical third of the hind femora, black; spurs and tarsi brown; fore metatarsus a fourth shorter, the entire tarsus about 2.3 longer than the tibia; middle tibiæ each with a single minute seta on flexor surface. Wings hyaline tinged with yellowish brown, with dusky yellow veins. (Fig. 213). Halteres yellowish. In an occasional specimen the base of the venter is obscurely yellowish. Selkirk Mts., Dowie Creek and Rogers Pass, B. C. (J.C.B.) July; Wis., (W.M.W.); Brookline, Mass. (C.W.J.) June; Ithaca, N. Y., Aug.; Orono, Me., Nov. 11)

33. Genus *Zygomyia* Winnertz. F

Verh. Zool.-bot. Ges. Wien. XIII. 901. 1863.

Front broad, the anterior margin produced into a triangle which descends to the root of the antennæ; lateral ocelli contiguous to the eye margin, the middle one minute, placed in a groove at the base of the frontal triangle. Legs strong, tibiæ with strong setæ, those of the hind tibiæ longer than the greatest diameter of the tibia. Costa not produced, subcosta short, ending free; cubitus simple, anal vein incomplete. The larvæ live in decaying wood and in fungi.

Table of species.

- a. Wing spotless. 1. *ignobilis*.
 aa. Wings marked with brown central spot and preapical cloud.
 b. Preapical fascia of wing distinctly crosses the media; length
 2.5 mm. 2. *ornata*.
 bb. Preapical cloud diffuse, its long axis parallel to the long axis
 of the wing; length 4 mm. 3. *varia*.

✓ 1. *Zygomyia ignobilis* Loew.

Berl. Ent. Zeitschr. XIII. 150. 1869.

Male and female. Length 2.5 mm. Fuscous, subopaque, pile pale, appressed, setæ black. Head black, antennæ brown, scape dusky yellow. Hypopygium yellowish (Fig. 97). Coxæ and legs yellow, hind margins and tips of hind femora brown to blackish; spurs and tarsi brown; middle tibiæ each with one small and one large seta on the flexor surface. Wings grayish hyaline (Fig. 214). Halteres yellow. "Middle States;" Ithaca, N. Y. 12

2. *Zygomyia ornata* Loew.

Berl. Ent. Zeitschr. XIII. 150. 1869.

Male and female. Length 2.2-2.5 mm. Head blackish, antennæ fuscous, scape, base of flagellum and palpi yellow; hairs pale. Thorax and abdomen fuscous, opaque, pile pale, setæ black; hypopygium yellowish (Fig. 98). Coxæ and legs yellow, tips of middle and hind femora and hind tibiæ, more or less dark brown, tarsi largely brown. Wing cinereous hyaline, yellowish toward the costa, a brown central spot, a preapical fascia, and a small less distinct spot behind the cubitus (Fig. 216). Halteres yellow. Wis.; Chicago, Ill., (W.M.W.) June, Aug.; Ithaca, N. Y., Aug. 11

3. *Zygomyia varia* Staeger.

Kröjer: Tidskr. 266. 1840. (*Mycetophila*).

Male and female. Length 3 mm. Head and antennæ brown, scape and palpi usually yellow. Thorax and abdomen brownish black subopaque; humeri reddish yellow; hypopygium dusky yellow; hairs brown with a yellowish tinge, appressed. Coxæ and legs reddish or rusty yellow, the tarsi and spurs, the tips of the hind femora, the extensor surface of the last and a spot

on the under side of the fore femur, brown; fore metatarsus about .88 as long, entire tarsus about 2.5 longer than the tibia. Wing more or less dusky yellow hyaline, with central spot and an elongate preapical cloud filling the apex of the cell R_1 and spreading out below it. Halteres yellow. "Europe." A female specimen 4 mm. long from Capens, Me. (C.W.J.), July.

THE SCIARINÆ.

(Exclusive of Arctic and Tropic species).

In the literature on economic entomology there are numerous references to members of this subfamily, though in but few instances were the species known.

Of the described North American species of *Sciara*, 16 are known to occur only in the Arctic region, 11 are from Mexico, the West Indies and Central America, and 32 are from the United States and Canada. Of the last only 15 are described in a recognizable manner. In view of our very imperfect knowledge of these gnats, an apology will be scarcely necessary for presenting this paper to economic entomologists. Though over 25 new species are described, it is very probable that they represent but a tithe of those which may eventually be found in the United States. It is quite possible that some of the species described here as new may be the same as some of those named by Say, Walker, or Fitch, but to attempt to link them is quite useless as only a comparison with the type specimens of these authors would lead to definite results. As far as I am aware, of these types, Walker's only are in existence.

The brief descriptions published by these authors are here reproduced for the sake of completeness. Some one else, possessing greater perspicacity than I, may have better fortune in identifying them with the species they are supposed to designate.

In my previous papers on the *Mycetophilidae* I have included the few arctic and tropic species described from North America but in the present treatment of the *Sciarinae* I deem it expedient to omit them, for none has been found in the material I have had the privilege of examining.

In studying these flies it was found that balsam mounts were far superior to pinned specimens. It is desirable to remove one wing and mount it under a separate cover glass, to insure its

lying perfectly flat. The hypopygium, unless it is turned side-wise, should also be cut off and separately mounted. A few color notes, describing palpi, halteres, thorax, and abdomen, are necessary, but they may be quite brief, the description not necessarily occupying more space than is found upon a microscope slide label. In the descriptions which follow it must be borne in mind that the body length given refers to dried specimens, balsam mounts and alcoholic specimens being about a third longer. The same caution must be observed in interpreting antennal lengths relative to that of the body; in drying, the antennæ do not shrink proportionally to that of the body, or more particularly of the abdomen. In comparing dimensions, wing measurements, etc., of any specimen with the figures given it will be imperative to use a micrometer scale and not depend solely upon the eye to estimate proportions.

Characters of the subfamily. Distinguished from the *Mycetophilinae* by the shorter coxæ and by the wing venation the R-M crossvein being in the same right line with the second section of the radial sector, and the cubitus forking near the base of the wing.

In a recent paper (Archiv f. Naturgeschichte, 1911) Professor Enderlein proposes a new arrangement of the genera based upon what appear to be good grounds. He separates the *Mycetophilidæ* from the *Sciaridæ* upon the form of the eye. In the former the eye is oval, sometimes more or less emarginate, but not contiguous over the base of the antennæ. In the *Sciaridæ* the eye possesses a slender process which passes over the base of the antenna meeting or nearly meeting the process from the opposite eye, thus forming a yoke or bridge over the base of the scape. He divides the *Sciaridæ* into 2 subfamilies, the *Lycoriinæ* (*Sciarinæ*) and the *Lestremiinæ*, the latter heretofore having been considered a group under the *Cecidomyiidæ*. If this classification were adopted, of the following 10 genera, *Proboscus*, *Manota* and *Pnyxia* would find a place with the *Mycetophilinæ*, *Zygoneura* with *Lestremiinæ*, and the remaining genera with the *Sciarinæ*.

Table of North American Genera.

- a. Proboscis longer than the thorax.
- b. Wing venation defective, several veins detached at base. (See page 258 Part III) *Proboscus*.

- bb. Wing venation complete, no detached veins. 1. *Eugnoriste*. 113
- aa. Proboscis not greatly prolonged.
 - b. Wing venation defective, several veins detached at base.
 - 2. *Manota*. 114
 - bb. Wings when present with complete venation, no detached veins.
 - c. Female wingless, in the male the media springs from the radius at an angle, the crossvein being obsolete (Fig. 264).
 - 3. *Pnyxia* n. g. 114
 - cc. Both sexes with wings; crossvein present.
 - d. Wings very distinctly hairy; claws not denticulate.
 - 4. *Trichosia*. 115
 - dd. Wings with microscopic setulæ but not hairy.
 - e. Antennal joints of the male pedicillate and with whorls of hair; forks of media arcuate.
 - 5. *Zygoneura*. 116
 - ee. Antennal joints bare or with short hairs.
 - f. Forks of media arcuate, and claws toothed.
 - 6. *Metangela*. 116
 - ff. Forks of media not arcuate, or if so, claws not toothed.
 - 7. *Phorodonta*. 117
 - g. Claws toothed.
 - gg. Claws not toothed.
 - 8. *Rhynchosciara*. 117
 - h. Face strongly produced.
 - hh. Face not produced.
 - 9. *Sciara*. 117

1. Genus *Eugnoriste* Coquillett.

Proc. Wash. Ent. Soc. III, 321, 1896.

Head, small, antennæ filiform, pubescent, 16-jointed; proboscis rigid, filiform, directed downward and backward, longer than the head, palpi 4-jointed, the first joint very short; 3 ocelli; eyes deeply emarginate. Wings bare, venation like *Sciara* (Fig. 253). Entire insect *Sciara*-like in appearance except for the elongate proboscis. Structure of eyes as in *Sciara*.

Table of Species.

- a. Proboscis longer than the head and thorax. 1. *occidentalis*.
- aa. Proboscis slightly longer than the head, slender, horny.
 - 2. *brevirostris*.

1. *Eugnoriste occidentalis* Coquillett.

Proc. Wash. Ent. Soc. III, 321, 1896.

Male and Female. Length 2.5 to 3 mm. Head and thorax black, subshining, antennæ, proboscis, palpi and halteres blackish brown, abdomen dark brown; coxæ and legs yellowish to brownish, tarsi darker; hypopygium (Fig. 138). Wings hya-

line, veins brown (Fig. 253). "Las Cruces, N. M." Moscow, Id., Manlius and Ithaca, N. Y. 111. *Agry*

2. *Eugnoriste brevirostris* Coquillett.

Proc. Wash. Ent. Soc. VI. 169, 1904.

Female. Length 3.5 mm. Black, the stems of the halteres yellow. Head narrow and elongate, about 3 times as long as wide, proboscis slightly longer than the head, slender, horny, over 6 times as long as wide. Wings grayish, apex of R_1 a short distance before the forking of the media. "Halfway House, Pike's Peak, Col." Sept.

2. Genus *Manota* Williston.

Dipt. of St. Vincent, W. I. 260, 1896.

Head flattened, placed rather high as regards the thorax; antennæ situated high up, 16-jointed. Three ocelli, in a gently curved line, laterals remote from the eye margin; palpi 3 jointed, elongate. Dorsum of thorax moderately convex, abdomen slender, flattened cylindrical. Coxæ elongate. Wings longer than the abdomen; Sc vestigial; R_1 ends before the middle of the wing; R_s not furcate; only apical parts of M_1 and M_2 present, bases and petiole of M wanting; costa far produced. *M. defecta* from the St. Vincent Isl. W. I. the only species.

In Enderlein's classification would be placed with the *Mycetophilinac*.

3 Genus *Pnyxia* n. gen.

Eye widely separate, ommatidia prominent, few in number; ocelli 3, in a triangle on the vertex; proboscis small, obscure; antennæ 16-jointed. Legs like *Sciara*, claws simple. Sexes dimorphic. Female wingless and without halteres, 40 ommatidia in each eye; palpus consist apparently of but one cup-shaped joint. Male with halteres and wings, the latter of 2 sizes, the majority of the individuals possessing very short wings which do not reach the 4th abdominal segment (Fig. 262); the remaining individuals with longer wings which extend beyond the tip of the abdomen (Fig. 264); petiole of the media arises at the angle of the basal section of R_s , the cross-vein hence obliterated; palpus with truncated tip, 2 or 3 jointed; ommatidia 50 to 75 in each eye. Hypopygium of the simple *Sciarid* type. Type species *Pnyxia scabiei* Hopkins.

This genus also would be placed with the *Mycetophilinae* in the classification of Enderlein.

Pnyxia scabici Hopkins.

Proc. Ent. Soc. Wash. III, 152. 1895 (*Epidapus*).

Male. Length 1 to 1.5 mm. Antennæ 3-4 the length of the body with short hairs. Thorax and abdomen dusky; legs pale spurs short. Wings hyaline; venation similar in both the short and long winged forms (Figs. 262, 264). Hypopygium pubescent, claspers simple (Fig. 136). Halteres long, knob dark, pedicel pale at base.

Female. Length 1 to 2 mm. Color lighter than the male. Head dark, antennæ about as long as the head and thorax. Ovipositor like that of *Sciara*, terminal joint oval.

Dr. Hopkins reared this species in West Virginia from scabby and diseased potato tubers. He also observed the larvæ feeding on the healthy living tissue of the potato and states that they cause conditions which in one stage would be recognized as potato scab and in a more advanced stage be recognized as a form of potato rot.

Specimens of this species were submitted to me for examination by Professor H. A. Surface who stated that the larvæ were found in Pennsylvania injuring peony bulbs. I have also seen specimens from Rhinebeck, N. Y., and from Columbia, Mo., which were collected by Prof. C. R. Crosby in rubbish while sifting for spiders.

4. Genus *Trichosia* Winnertz.

Monogr. Sciarinen. 173, 1867.

In structural characters similar to the genus *Sciara*, but differs in having the wing surface distinctly hairy instead of microscopic setulose.

Trichosia hebes Loew.

Berlin. Ent. Zeitschr. XIII. 161. 1869.

Female. Length 2.9 mm., wing 2.6 mm. Black including head; face, palpi, and antennæ fuscous black, the base of the last paler. Mesonotum moderately shining, humeri yellowish.

Abdomen blackish, including lamellæ of ovipositor. Legs dusky yellowish, posterior tibiæ darker, tarsi fuscous black. Wings blackish, semihyaline, veins blackish; R_1 ends about opposite the base of cell M_1 . Halteres black with yellow pedicel. "N. Y." Ithaca, N. Y. Also a single defective specimen which may belong here from Douglass Co., Kas. (E. S. Tucker).

5. Genus *Zygoneura* Meigen.

System. Beschr. VI. 304. 1830.

In structural characters similar to *Sciara* but differs in having both forks of the media strongly arcuate so that the cell between is wider near the base than farther distad, widening again on the wing margin, in this respect resembling *Metangela* from which it differs in having simple tarsal claws and in the male with pedicellate antennal joints having whorls of hair.

Zygoneura flavicoxa n. sp.

Male. Length 1 mm. Head and thorax blackish brown, shining, abdomen brown, hypopygium darker brown; clasper (Fig. 99). Palpi yellow, antennæ brown, the petiole of each joint nearly as long as the distal part, total length of antenna about 1.3 greater than the body, the hairs brown. Coxæ and legs pale yellow, tarsi darker, hind tarsus less than 3-4, the metatarsus 3-8 as long as the tibia. Wing yellowish hyaline, veins yellowish brown; costa ends about 3-4 of the distance from R_s to M_1 (Fig. 254). Ithaca, N. Y.

6. Genus *Metangela* Rübsaamen.

Berlin. Ent. Zeitschr. XXXIX. 19. 1894.

In structural characters, including those of the wings and antennæ, similar to the genus *Sciara* but differs in having both forks of the media strongly arcuate so that the cell between is wider near the base than at a point near the tip widening again on the wing margin. Tarsal claws toothed.

Metangela toxoneura Osten Sacken.

Proc. Ent. Soc. Phil. 165. 1862. (*Sciara*).

This species was later referred by Osten Sacken to *Zygoneura* in spite of its *Sciara*-like antennæ. Rübsaamen suggests that it belongs to *Metangela* though the original description of the

species does not mention the claws. I neglected to examine the type at Cambridge, Mass.

Male and female. Length 3 to 4 mm. Black, including antennæ, mouth and palpi; thorax shining, legs and fore coxæ yellowish; wings of the male subhyaline, of the female tinged with black. "D. C." Larvæ in cow dung.

7. Genus *Phorodonta* Coquillett.

Proc. U. S. Nat. Museum. XXXVII. 589. 1910.

Odontonyx, Rübs. Berlin. Ent. Zeitschr. XXXIX. 19. 1894.

Wings, proboscis, and antennæ as in *Sciara*; claws elongate and distinctly toothed.

Phorodonta niger Wiedemann.

Diptera exot. I. 44. 1821 (*Sciara*).

Male. Length 4.7 mm. Black; the antennæ alone in certain lights more grayish. "Ga., N. M., Mexico." *O. helveolus* Rübs. is a Porto Rican species.

8. Genus *Rhynchosciara* Rübsaamen.

Berlin. Ent. Zeitschr. XXXIX. 19. 1894.

Face produced snoutlike; proboscis with broad lamellæ; eyes, antennæ, and venation as in *Sciara*. Legs strong, claws simple, empodium and pulvillæ present. This genus occurs in Mexico.

9. Genus *Sciara* Meigen.

Illiger's Mag. II. 263, 1803.

Lycoria Meigen, Nouv. Class. 1800 (without type).

Head small; proboscis short; palpi 4-jointed, the first very short and not always distinctly differentiated from the second; antennæ 2+14-jointed; three ocelli, the laterals remote from the eye margin. Thorax moderately arched. Legs slender, tarsal claws not toothed. Wings microscopically setulose, not hairy (Figs. 218-252). Halteres present.

*Table of Species.**

a. Large southern species, 6 mm. or more in length; males undescribed.

b. R_1 ends distad of the base of the fork of M; wing blackish (Fig. 218).

1. *picea*.

*This table is based in part on male characters, only a few well-defined species represented by females alone are included. By wing length is meant the distance from the humeral crossvein to the tip of the wing, measured parallel to the longitudinal axis.

bb. R_1 ends about opposite the base of the fork of M. 2. *cingulata*.
 aa. Medium or small species.

b. Costa, radius, media except sometimes the petiole, and cubitus of the wings distinctly though sparsely setose.

c. R_1 ends noticeably proximad of the fork of M; small species.

d. Petiole of the cubitus 1-8 as long as the basal section of M (Fig. 219); clasper (Fig. 100); N. Y. 3 *vicina* n. sp.

dd. Petiole of the cubitus over half as long as the basal section of M (Fig. 220); clasper (Fig. 101); Cal. 4. *dives* n. sp.

cc. R_1 ends about opposite or distad of the base of the fork of M; species 2.5 mm. or more in length.

d. Petiole of the cubitus over 1-2 as long as the basal section of M.

e. R_1 ends about opposite the forking of M (Fig. 221).

5. *futilis* n. sp.

ee. R_1 ends distad of the forking of M (Fig. 266).

6. *abditus* n. sp.

dd. Petiole of the cubitus less than 1-4 as long as the basal section of M.

e. Humeri, pleura in part and hypopygium (Fig. 103) more or less yellow; knob of halteres dark. 7. *ochrolabis*

ee. Thorax and abdomen, black.

f. Halteres and coxæ yellow; claspers (Fig. 139).

8. *habilis* n. sp.

ff. Halteres and coxæ black; claspers (Fig. 104).

9. *sciophila*

bb. Media and cubitus without setæ.

c. R_1 ends distad, or opposite (not more than 1-10 of wing length proximad) of the base of the fork of M, and base of Rs at or proximad of a point midway between the humeral crossvein and the tip of R_1 .

d. Thorax yellowish to rufous, coxæ and femora dull yellow, claspers large, triangular (Fig. 111), hind tarsus 1-8 shorter than tibia. 10. *fulvicauda*.

dd. Thorax dusky, claspers of different structure.

e. Rs ends proximad of the tip of M_2 ; halteres dark.

f. Flagellar joints scarcely longer than broad; clasper with 2 median lobes (Fig. 109). 11. *tridentata*.

ff. Intermediate flagellar joints over twice as long as broad; clasper without median lobes (Fig. 105).

12. *munda* n. sp.

ee. Rs and M_2 end about equidistant from the base of the wing.

f. R_1 ends distad of the forking of M; halteres dark.

g. Mesal process of clasper robust (Fig. 106 m); wing (Fig. 225). 13. *dux* n. sp.

gg. Mesal process of claspers slender (Fig. 107 m); wing (Fig. 226). 14. *imitans* n. sp.

ff. R_1 ends about opposite the forking of M.

- g. Apical tooth of clasper placed near the mesal margin of the apex (Fig. 115); species under 2.5 mm, halteres dusky yellow. 40. *varians*, var. c.
- gg. Apical tooth of clasper placed at apex (Fig. 108) or tooth wanting (Fig. 123).
- h. Halteres blackish; hind coxæ and legs brownish; claspers without apical tooth (Fig. 123); wing (Fig. 232). 23. *jucunda* n. sp.
- hh. Halteres and coxæ yellowish; clasper with distinct apical tooth (Fig. 108).
- i. Petiole of cubitus about .6 as long as the basal section of M (Fig. 227). 15. *prolifca*.
- ii. Petiole of cubitus over .8 as long as the basal section of M.
- j. Wing veins heavily shaded (Fig. 228). *prolifca*, var. a.
- jj. Wing veins not shaded. *prolifca*, var. b.
- cc. R_1 ends at least 1-16 of the wing length proximad of the forking of M; the base of R_s is distad of the mid point between the humeral crossvein and the tip of R_1 .
- d. Fulvous mesonotum, abdomen more dusky; or reddish species.
- e. Dusky red species, female 4 mm. long, halteres white, male not described. 16. *silvestrii*.
- ee. Fulvous mesonotum, abdomen more dusky; length 2 mm., or less.
- f. Clasper without strong spines at apex (Fig. 110); tip of R_s far remote from apex of wing (Fig. 229). 17. *mellea* n. sp.
- ff. Clasper with one or more apical spines.
- g. M_1 less than .8 as long as the petiole of the media. 18. *tritici*.
- gg. M_1 over .9 as long as the petiole of the media (Fig. 265). 48. *ocellaris*.
- dd. Black or fuscous species.
- e. Clasper with a mesal articulated process (Fig. 112); R_s ends far remote from apex of wing (Fig. 230). 19. *hastata* n. sp.
- ee. Clasper without mesal articulated process.
- f. Hypopygium near its base with a patch or tuft of setæ on the median ventral line (Figs. 117a, 123a, 124); petiole of the cubitus under .6 as long as the basal section of M.
- g. Clasper with a terminal tooth.
- h. With about 10 setæ in the basal median ventral patch of the hypopygium (Fig. 117a). 20. *paucisetæ*.

- hh. With over 25 setæ in this patch (Fig. 124).
- i. Abdomen variable dark ochreous, palpi yellowish, anterior veins dark ochreous.
21. *multiseta*.
- ii. Abdomen variable dark brown; palpi brown, anterior veins nearly black.
22. *agraria*.
- gg. Clasper without terminal tooth (Fig. 123); the hypopygium with the setæ of the ventral median patch arranged in a transverse line (Fig. 123a); halteres black.
23. *jucunda* n. sp.
- ff. Hypopygium without a tuft of setæ on the median ventral line near the base.
- g. Clasper with about 5 large subequal teeth or spines (Figs. 113, 119).
- h. Tip of Rs about .10 of wing length proximad of tip of M₂ and ending proximad of .85 of wing length (Fig. 239); palpi and halteres dark; mesonotum shining black.
24. *S. sp.*
- hh. Tip of Rs less remote from apex of wing; costa produced fully 3-4 of distance from tip of Rs to M₁; coxæ and halteres yellow.
25. *mutua* n. sp.
- gg. Clasper of different structure.
- h. Petiole of cubitus short, less than half as long as basal section of M.
- i. Wing veins strongly marked; Rs ends distad of M₂; costa produced about 1-2 of distance from Rs to M₁; thorax shining.
- j. Halteres and coxæ bright yellow.
35. *nigricans* n. sp.
- jj. Halteres fuscous, (Figs. 217, 260).
36. *actuosa* n. sp.
- ii. Costa produced over 1-2 distance from Rs to M₁, if not, then Rs ends proximad of tip of M₂.
- j. Clasper with several apical teeth or spines.
- k. Clasper short, curved, with several apical teeth (Fig. 114); R₁ ends at about 1-3 length of wing; Rs and M₂ end about equi-distant from base of wing (Fig. 234); halteres yellow.
26. *nacta* n. sp.
- kk. Clasper with apical setæ or spines (Fig. 133, 261).
- l. R₁ ends near middle of wing; costa produced over half way to M₁.
46. *coprophila*.
- ll. R₁ ends noticeably proximad of the middle of the wing; costa produced scant half way from Rs to M₁ (Fig. 267).
32. *cucumeris* n. sp.

- jj. Clasper without any, or with only a single prominent apical or subapical tooth besides the setæ; or if 2 or 3 smaller spines are present then tip of Rs is proximad of the tip of M₂.
- k. R₁ ends only slightly proximad of the forking of M (Fig. 255); knob of halteres and coxæ brownish; clasper (Fig. 115).
40. *varians*, var c.
- kk. R₁ ends far proximad of the forking of M.
- l. Clasper subglobular.
- m. Clasper subglobular, with the tooth subapical in position (Fig. 116); wing broad. 27. *S. sp.*
- mm. Without subapical tooth. 28. *lugens* n. sp.
- ll. Clasper more slender, wing narrow.
- m. Halteres yellow; Rs ends far proximad of the tip of M₂ (Fig. 241). 30. *fatigans* n. sp.
(See *S. sp.* p. 144).
- mm. Halteres fuscous; Rs and M₂ end about equidistant from base of wing (Fig. 250). 44. *acuta* n. sp.
- hh. Petiole of the cubitus at least half as long as the basal section of M.
- i. Rs ends proximad of .85 of the length of the wing.
- j. Clasper with 2 strong apical spines (Fig. 118); wing veins strongly defined (Fig. 238); thorax shining black. 29. *parilis* n. sp.
- jj. Clasper and wing of different structure.
- k. Costa produced less than 2-3 of distance from Rs to M₁.
- l. Wing narrow (Fig. 240); hypopygium (Fig. 120). 31. *sativæ* n. sp.
- ll. Wing wider (Fig. 267); costa less produced; hypopygium (Fig. 261). 32. *cucumeris* n. sp.
- kk. Costa produced over 2-3 from Rs to M₁.
- l. Clasper with 2 apical teeth (Fig. 121); petiole of cubitus about 3-4 as long as basal section of M; hind tarsus shorter than the tibia. 33. *S. sp.*
- ll. Clasper with a median process (Fig. 122); petiole of the cubitus about half as long as the basal section of M (Fig. 242); hind tarsus and tibia subequal. 34. *neglecta* n. sp.

- ii. Rs ends distad of .85 of wing length.
- j. Clasper with one prominent terminal or sub-terminal spine or tooth, or if several teeth are present, one is conspicuously larger than the others.
- k. Costa produced about 1-2 way from Rs to M_1 .
 - 1. Halteres bright yellow; claspers (Fig. 125); wing (Fig. 243).
 - 35. *nigricans* n. sp.
 - 11. Halteres fuscous; wing (Fig. 217).
 - 36. *actuosa* n. sp.
- kk. Costa produced over 1-2 way from Rs to M_1 .
 - 1. Costa produced over 3-4 way from Rs to M_1 . (Fig. 244); halteres yellow, claspers (Fig. 126).
 - 37. *S. sp.*
 - 11. Costa produced less than .7 from Rs to M_1 .
 - m. R_1 ends over 1-5 of wing length proximad of the forking of the media (Fig. 245); halteres dark; clasper (Fig. 127).
 - 38. *dolens* n. sp.
 - mm. R_1 ends less than .15 of wing length proximad of forking of M.
 - n. Apex of clasper with a number of spines of which one is somewhat larger than the others (Fig. 132).
 - o. Halteres yellow; clasper (Fig. 132).
 - 39. *diluta* n. sp.
 - oo. Halteres dark; clasper (Fig. 140).
 - diluta* var. a.
 - nn. Spine of apex of clasper distinctly differentiated from the apical setæ (Fig. 115); halteres yellow.
 - o. Costa produced less than 5-8 of distance from Rs to M_1 .
 - p. Hind tibia a little shorter than the tarsus; wing (Fig. 246).
 - 40. *varians* n. sp.
 - pp. Hind tibia and tarsus subequal in length.
 - varians* var. a.
 - oo. Costa produced over 2-3 of distance from Rs to M_1 .
 - varians*, var. b.
 - jj. Clasper with 2 or more prominent apical teeth, spines, or with strong setæ.

- k. Clasper with 2 or 3 apical or subapical spines; halteres black or brown.
 - l. Black species 3 mm. in length, with blackish legs, clasper subglobose (Fig. 128). 41. *scita* n. sp.
 - ll. Smaller species with yellow legs, clasper more slender.
 - m. Spines of clasper short (Fig. 129); pleura reddish. 42. *fumida* n. sp.
 - mm. Spines of clasper long (Fig. 130); pleura fuscous. 43. *trivialis* n. sp.
- kk. Clasper with 5 or more apical and subapical setæ or spines.
 - l. Apex of clasper with 6 or 8 setæ of which one is somewhat set apart from the others (Fig. 137); halteres yellow; hind coxæ dark; wing (Fig. 252). 45. *impatiens* n. sp.
 - ll. Setæ of apex of clasper subequal in size.
 - m. Antennæ of male less than 3-4 length of body in dried specimens; coxæ yellowish. 46. *coprophila*.
 - mm. Antennæ of male over 3-4 of length of body in dried specimens; coxæ brownish, hind pair darker. 47. *caldaria*.

Females may usually be traced by means of the key but to do so it will be necessary to follow out several branches of the dichotomic divisions. The females of the species *pauciseta*, *multiseta*, *agraria*, *coprophila*, *caldaria*, and *varians* all bear a close resemblance to each other; and are therefore separated with difficulty.

Say's, Walker's and Fitch's species are not included in the table. The descriptions of all are reproduced on page 138 and following.

1. *Sciara picea* Rübsaamen.

Berlin. Ent. Zeitschr. XXXIX, 32. 1894.

Female. Length 11 mm., wing 9 mm., antennæ 4 mm. Head and thorax black, the latter slightly pruinose. Abdomen fuscous with broad orange colored lateral spots, posterior margins of the tergites narrowly yellow; all the parts fuscous. Costal cell of the wing broad, wing brown, costal, subcostal and cell R_1 darkest; subcosta ends free opposite base of R_s ; R_1 ends somewhat distad of the base of the fork of M ; costa produced half way from R_s to M_1 ; petiole of the cubitus very short. "Ga."

Twelve specimens, from N. C., Ga., and Fla., are as described

above with the following variations. R_1 in most of the specimens ends a little more distad and the costa is somewhat more produced (Fig. 218); the thorax is subshining, though also somewhat pruinose; the abdomen varies from wholly reddish, excepting the fuscous terminal joints, to a uniform fuscous, most of the specimens having the sides of the abdominal segments more or less dusky red. Length 8 to 9 mm. (dried specimens), wing 8 mm. Only the costa and radius of the wing with setæ. Ovipositor as figured (Fig. 143).

2. *Sciara cingulata* Rübsaamen.

Berlin. Ent. Zeitschr. XXXIX. 31. 1894.

Female. Length 7.25 mm.; wing 5.5 mm., antennæ 3 mm. Mesonotum black polished; humeri and collar yellow; pleura yellowish brown, abdomen fuscous black, with orange colored lateral spots; segments with yellow posterior margins. Palpi, antennæ, knobs of halteres, and tarsi brown; pedicel of halteres, coxæ, femora, and tibiæ yellow, trochanter black below. The basal flagellar joints, twice, the more terminal joints thrice as long as broad. R_1 of the wing ends about opposite the base of the fork of the media; costa produced 2-3 of distance from R_s to M_1 ; petiole of the cubitus shorter than the width of the costal cell (less than 1-2 as long as the basal section of M according to the author's figure). Legs slender, setæ of the tarsi strong; claws small. Terminal lobe of ovipositor oval, 1-2 as long as the preceding joint. "Georgia."

3. *Sciara vicina* n. sp.

Male. Length 2.2 mm. Head shining black, face dull, palpi and antennæ fuscous, the last about as long as the body. Thorax including scutellum and metanotum shining black, pleura dull. Abdomen subshining black, sparsely black haired; hypopygium black, clasper (Fig. 100). Coxæ yellow, legs yellow, tarsi more brownish, trochanters black below; hind tarsus an eighth shorter than the tibia. Wing (Fig. 219) hyaline, anterior veins darker, longitudinal veins except subcosta and petiole of media sparsely setose. Halteres dark, petiole paler toward base. Ithaca, N. Y., June.

4. *Sciara dives* n. sp.

Male and female. Length 2 mm. Head, thorax and abdomen subopaque fuscous black; palpi and antennæ fuscous (apical joints lacking). Abdomen sparsely black haired; hypopygium dark, clasper (Fig. 101). Coxæ and legs yellowish brown, tarsi darker, hind tibia and tarsus subequal in length. Wing hyaline (Fig. 220), anterior veins brownish, longitudinal veins except subcosta and petiole of media sparsely setose. Halteres dark, petiole slightly paler towards base. Stanford Univ., Cal. (J.M.A.) Jan.

5. *Sciara futilis* n. sp.

Male and female. Length 2.5-3.5 mm. Head subshining blackish, face and palpi reddish, 2 basal joints of antennæ yellowish; flagellum dusky. Thorax subshining brownish black, humeri, scutellum, and pleura reddish brown. Abdomen dark brown venter a little paler; hypopygium yellow, clasper (Fig. 102). Coxæ and legs yellow, tarsi darker, trochanters black below; hind tarsus nearly 1-4 shorter than the tibia. Wings hyaline (Fig. 221), anterior veins darker, longitudinal veins except subcosta and petiole of media sparsely setose. Halteres dusky yellow. Wis. (W.M.W.).

6. *Sciara abdita* n. sp.

Male. Length 2.5 mm. Head, thorax and abdomen blackish, mesonotum subshining, humeri paler; palpi, antennæ and halteres fuscous; coxæ and legs yellowish; tarsi darker; hypopygium black, claspers subglobose with several apical spines which are not sharply differentiated from the apical setæ (Fig. 258); antennæ about 0.6 as long as the body. Wings hyaline, anterior veins brownish, all longitudinal veins except the subcosta, setose (Fig. 266). Kearney, Ont. (M. C. VanDuzee).

7. *Sciara ochrolabis* Loew.

Berliner. Ent. Zeitschr. XIII. 160, 1869.

Male. Length 2.5-3 mm. Head black, face more reddish, palpi fuscous, scape of antennæ yellow, flagellum fuscous, nearly as long as the body. Mesonotum with 3 shining brownish black subconfluent stripes which in immature specimens may be reddish, scutellum the color of the mesonotum; metanotum and pleura ranging from reddish yellow to reddish brown. Abdo-

men reddish brown, or more rarely subfuscous, apical segments fuscous; hypopygium very large, yellow, margin of clasper black (Fig. 103). Coxæ and legs pale yellow, trochanter tipped with black, tarsi dusky. Wings subhyaline (Fig. 222), anterior veins dark; longitudinal veins except subcosta and petiole of the media, sparsely setose. Halteres black, petiole yellow. "N. Y.;" Ithaca, N. Y., Wis.

Female. Colored like the male; though the abdomen is usually somewhat darker; ovipositor dark (Fig. 145); antennæ not elongate. Same localities.

8. *Sciara habilis* n. sp.

Male and female. Length 3 to 4.5 mm. Black, thorax and abdomen subshining, with yellow hairs; antennæ and palpi fuscous, antennæ about half the length of the body in the male. Hypopygium dark, claspers (Fig. 139). Coxæ and legs bright yellow; hind tibia and tarsi subequal, trochanters black below. Wings hyaline, all veins setose except subcosta, yellow (Fig. 256). Halteres yellow. Ithaca, N. Y., June; Black Mts., N. C., (W.B.), June; Kearney, Ont.

9. *Sciara sciophila* Loew.

Berliner Ent. Zeitschr. XIII. 160, 1869.

Male and female. Length 3.2-3.9 mm. Black including the palpi and knob of the halteres; thorax shining, humeri dusky yellow, coxæ and legs pale yellow, trochanters and tarsi fuscous black, wings, semi-hyaline, "D. C."

Some males captured at Falls Church, Va. (Banks, Col.) agree with Loew's extended description and with the type at Cambridge excepting that the antennæ are wholly black including the second joint of the scape, the humeri are black, and the coxæ and legs are dusky yellow. The longitudinal veins, excepting the subcosta, are sparsely setose (Fig. 223). The hypopygium is large, subglobose, and black; clasper (Fig. 104).

10. *Sciara fulvicauda* Felt.

Rept. State Ent. N. Y. XII. 227, 1897.

Male. Length 4 mm. Face ochreous; vertex dark ochreous; scape of antennæ yellow, flagellum dark ochreous with rather dense whitish pubescence barely as long as head and thorax;

palpi fuscous; dorsum of thorax yellowish to rufous, the scutellum of the metathorax with variable dark stripes, in some specimens hardly discernible; pleura yellow; wings hyaline, anterior veins fuscous; knob of halteres fuscous with yellow tip, pedicel yellowish, tip of trochanter black; coxa and femur dull yellow; tibia darker; tarsi fuscous apically, abdomen fuscous except the yellow terminal segment bearing the large ochreous claspers which are tipped with fuscous (Fig. 111). Costa and radius with setæ, R_1 ends about opposite the fork of the media, the base of R_s proximad of the mid point between the humeral crossvein and the tip of R_1 , R_s ends slightly proximad of the tip of M_2 ; petiole of the cubitus less than half as long as the basal section of the media; cubitus produced over 3-4 of distance from tip of R_s to tip of M_1 . Reared from decaying blackberry roots. "Atlantic Co., N. J."

11. *Sciara tridentata* Rübsaamen.

Grönländische Mycetophiliden, etc. 107. 1898.

validicornis Lundbeck. Dipt. Groenl. 1. 243. 1898.

Male. Length 3 mm., wing 3.5 mm., antenna 1.5 mm. Shining black, lateral stripe of abdomen scarcely paler; halteres and palpi fuscous. Flagellar joints scarcely longer than wide, except the last which is 1.5 as long as wide. R_1 ends about opposite the base of the fork of M , base of R_s arises a little distad of the mid point between humeral crossvein and the tip of R_1 ; costa produced about half way from the tip of R_s to M_1 ; petiole of cubitus somewhat shorter than basal section of the media. Clasper as figured (Fig. 109). "Greenland; Lowe Inlet, B. C."

12. *Sciara munda* n. sp.

Male. Length 3 mm. Black, antennæ wholly, palpi, halteres and apical part of abdomen fuscous black, thorax subshining; base of abdomen brown; coxæ and legs pale brown, tarsi darker; hind tibia and tarsi subequal. Hypopygium black, clasper (Fig. 105). Wings subhyaline, veins strong (Fig. 224). Friday Harbor, Washington (J.M.A.).

13. *Sciara dux* n. sp.

Male. Length 2.5 mm. Black, thorax shining, second joint of scape, petiole of halteres, coxæ and legs yellow, tarsi dusky;

hind tibia and tarsi subequal. Hypopygium black, subglobose, clasper (Fig. 106). Wings grayish hyaline, anterior veins dark (Fig. 225). Wis.! (W.M.W.).

Female. Length 4 mm. Colored like the male but the anterior cells of the wing more smoky. Ithaca, N. Y. June.

14. *Sciara imitans* n. sp.

Male. Length 2.8 mm. Black, thorax shining, fore coxæ yellowish, hind coxæ and legs brownish, tarsi darker; hind tibia and tarsi subequal, antennæ about half the length of body. Hypopygium black, robust, subglobose, clasper (Fig. 107). Wings grayish hyaline, anterior veins dark (Fig. 226). Resembles *S. dux* but differs chiefly in the form of the mesal process of the claspers. Friday Harbor, Wash. (J.M.A.) May.

15. *Sciara prolifica* Felt.

Rept. State Ent. N. Y. XII. 226: 1897.

Male. Length 2.8 mm. Black, subopaque, the scape and the dorsal surface of the prominent hypopygium dusky yellow; clasper (Fig. 108); antennæ about 1-2 the length of the body; the narrow hind margins of the abdominal tergites sometimes distinctly cinereous; halteres, coxæ and legs yellow, the hind coxæ and tarsi more dusky; trochanters black. Wings grayish hyaline, the veins fuscous (Fig. 227). Id., Wash., (J. M. A.). Ithaca, N. Y.

The type specimens (balsam mounts) are 4.4 mm. long. According to Dr. Felt's description the knob of the halteres are fuscous and coxæ and legs are darker, otherwise there are no differences.

Female. Like the male but slightly larger. "Mass."

Var. a. Male. As above with the wings more heavily shaded (Fig. 228) and petiole of the cubitus over .8 as long as the basal section of M. Ithaca, N. Y.

Var. b. Male and female. Cubitus like in Var. a, otherwise as in the typical variety. S. D., Cal., (J.M.A.); R. I. (J.B.); Selkirk Mts., B. C. (J.C.B.).

16. *Sciara silvestrii* Kieffer.

Bol. Lab. Zool. Scuola d'Agr. Portici IV. 327, 1910.

Female. Length 4 mm. Dusky red, antennæ brown, legs

pale brown, halteres white. Wings like those of *S. Zealandica* but the tip of R_1 ends at the middle of the wing which is much nearer the tip of R_s than to the base of wing, tip of R_s more proximad than the tip of M_2 , the costa ends 4 to 5 times nearer the tip of M_1 than to R_s . Tarsi with short setæ below. Lamellæ of the ovipositor 2 to 3 times as long as broad, "N. Y." The *S. zealandica* here referred to has a venation strongly resembling the wing of *S. coprophila* (Fig. 236), but differs in having R_1 ending more proximad than in *S. coprophila*, and in the cubitus forking distad of the base of the petiole of the media. The latter condition is rare and if true also for *S. silvestrii* would make it readily recognizable.

17. *Sciara mellea* n. sp.

Male. Length 2 mm. Honey yellow; the vertex, the abdomen and tarsi pale brown, the flagellum of antenna fuscous, eyes black; hypopygium pale, clasper (Fig. 110). Wing hyaline, anterior veins dusky (Fig. 229). Salineville, Ohio.

18. *Sciara tritici* Coquillett.

Insect Life. VII. 408. 1895.

Male. Length 1.8 mm. Antennæ two-thirds as long as the body, black, the first 2 joints fulvous; head black, the face fulvous; palpi brown. Thorax dorsally fulvous, the pleura brownish, marked on the lowest third with a whitish vitta, also with a whitish spot below the humerus. Abdomen reddish-brown, clasper with several short claw-like processes on the apical third of the inner side and at the tip (resembling Fig. 120). Legs testaceous. Wings grayish hyaline, venation resembling that of *Sciara neglecta* shown in Fig. 242, but in *S. tritici* M_1 is .78 as long as the petiole of the media and the cell R_1 narrower toward the apex. Halteres yellow, the knob brownish.

Female. Length 2.5 mm. Same as the male except that the antennæ are only half as long as the body. The last joint of the ovipositor is slightly longer than wide.

This species is injurious to wheat, its larvæ feeding on the roots and mining in the stems.

19. *Sciara hastata* n. sp.

Male and female. Length 1.5 mm. Shining black, scape and flagellum of antennæ and palpi fuscous; hypopygium dark, clasper (Fig. 112). Coxæ and legs dusky yellow, tarsi darker, hind tibia and tarsus subequal, trochanter black. Wings (Fig. 230), hyaline, veins fuscous. Halteres brownish. Tompkins Co., N. Y. June, July.

20. *Sciara pauciseta* Felt.

Rept. State Ent. N. Y. XII. 224, 1897.

Male. Length 2 mm. Black, thorax subshining; antennæ and palpi fuscous; hypopygium dark, clasper (Fig. 117). Antennæ nearly as long as the body. Coxæ and legs yellowish, trochanters black below, tarsi fuscous, hind tibia and tarsi subequal. Wings hyaline, anterior veins fuscous (Fig. 231). Halteres fuscous with yellowish petiole.

Female. Like the male in coloring; antennæ about half the length of the body. Ovipositor (Fig. 141). Both sexes from Grand Forks, B. C. (Dr. Hewitt); Ithaca, N. Y., July-Oct.; Claremont, Cal. (Prof. Baker). The Ithaca specimens were reared from gooseberries, the Canadian specimens from decaying choke cherries, those from California, from orange or lemon twigs.

Co-type specimens (balsam mount) kindly loaned by Dr. Felt measures 2.75 mm. "N. J." Reared from decaying potatoes.

21. *Sciara multiseta* Felt.

Rept. State Ent. N. Y. XII, 223. 1897.

Male. Length 2.5 mm. Closely resembles the foregoing in structural characters but differs in having a larger number of setæ (over 25) in the patch situated on the middle of the dorsal surface of the hypopygium near its base (Fig. 124). In color it differs in being lighter, the abdomen variable dark ochreous, palpi yellowish and anterior wing veins dark ochreous.

Female. Similar in color; length 3 mm. Reared from mushrooms by Dr. J. B. Smith, "N. J."

22. *Sciara agraria* Felt.

Rept. State Ent. N. Y. XII. 225, 1897.

Male. Length 2.5 mm. In all structural characters like *S. multiseta*, setæ in dorsal patch of the hypopygium over 25 in number. In coloring like *S. pauciseta*.

Female. Similar but slightly larger. "Numerous in mushroom cellar, Albany, N. Y."

23. *Sciara jucunda* n. sp.

Male. Length 2.5 mm. Black, including antennæ, palpi, and halteres; mesonotum subopaque. Antenna about 1-2 as long as the body. Hypopygium black, near its base with a small median dorsal lobe margined with setæ (Fig. 123a); clasper without apical tooth (Fig. 123). Coxæ, dusky yellow, hind pair brown, legs dusky yellow to brownish, tarsi darker; hind tarsus but little longer than the tibia. Wings grayish hyaline; veins brown, strongly marked (Fig. 232). Halteres fuscous, pedicel paler fuscous, Kingston, R. I. (J.B.); Ithaca, N. Y., June-Aug., Niagara Falls, N. Y.

Female. Length 3 mm. Colored like the male, but anterior cells of the wing more smoky. Wisconsin and Ithaca, N. Y.

24. *Sciara* sp.

Male. Length 1.2 mm. Black, thorax shining, hypopygium dark, clasper (Fig. 119). Antennæ broken, basal joint and palpi black. Coxæ fuscous, legs brownish, tarsi darker; hind tarsus shorter than the tibia. Wings hyaline (Fig. 239). Halteres fuscous. Kingston, R. I. (J.B.).

25. *Sciara mutua* n. sp.

Male. Length 2 mm. Head and antennæ fuscous, scape and 2 basal joints of flagellum yellow; antenna about 3-4 the length of the body. Thorax and abdomen reddish brown, subshining, mesonotum, scutellum and metanotum subfuscous. Hypopygium yellowish to dusky, clasper (Fig. 113). Coxæ and legs yellow, tarsi darker, trochanters black below, hind tarsus 1-16 shorter than the tibia. Wings hyaline, veins subfuscous (Fig. 233). Halteres yellow. Ithaca, N. Y.!, June; N. Evans, N. Y.

26. *Sciara nacta* n. sp.

Male and female. Length 1 mm. Fuscous, including antennæ and palpi; thorax subshining, hypopygium dusky, clasper (Fig. 114). Coxæ and legs dusky yellow, trochanters black below, tip of metatarsus and remaining tarsal joints fuscous; hind tibia .05 longer than the tarsus. Wings hyaline, veins fuscous (Fig. 234). Halteres subfuscous. Ithaca, N. Y.

27. *Sciara* sp.

Male. Length 2.5 mm. Fuscous, including antennæ and palpi; thorax subshining; hypopygium dark, clasper (Fig. 116). Coxæ and legs yellowish, tarsi darker. Wings hyaline, veins dusky (Fig. 235). Halteres dusky yellow. Orono, Maine; June.

28. *Sciara lugens* n. sp.

Male and female. Length 2.5 mm; antennæ of male 2.2 mm; of female 1.3 mm. Black; thorax highly polished, abdomen subshining; antennæ, palpi, halteres, and hypopygium fuscous, resembling that of *S. jucunda* but lacking the median ventral transverse row of setæ; claspers subglobose resembling Fig. 123; coxæ, and legs brown, tarsi darker; hind metatarsus 1-8 shorter than the tibia. Wing hyaline (Fig. 257). Reared from larvæ found in decaying wood. Orono, Maine.

29. *Sciara parilis* n. sp.

Male. Length 2 mm. Shining black, palpi, halteres, and antennæ fuscous, the last about 3-4 as long as the body, the intermediate joints of the flagellum robust, less than twice as long as broad. Coxæ and legs pale brownish, fore coxæ rather paler; hind tibia 1-16 longer than the tarsus. Wings grayish hyaline, anterior veins fuscous (Fig. 238). Hypopygium dark, clasper (Fig. 118). Lawrence!, and Douglas Co., Kas. June-August.¹

Female. Similar to the male in coloring; antennæ shorter. Ithaca, N. Y. and Kansas.

30. *Sciara fatigans* n. sp.

Male and female. Length 1 mm. Fuscous, thorax subshining, hypopygium dark, clasper (Fig. 135); antenna of the male long, more than .8 length of the body, fuscous; palpi yel-

low. Coxæ and legs yellow, tarsi darker. Wings hyaline, anterior veins brownish (Fig. 241). Halteres dusky yellow. Ithaca, N. Y.

31. *Sciara sativæ* n. sp.

Male. Length 1 mm. Fuscous, hypopygium dark, clasper (Fig. 120); antenna long, more than .8 length of the body, fuscous; palpi, coxæ, legs and halteres yellow, tarsi darker. Wings hyaline, petiole of media and M₂ subequal in length (Fig. 240). Bred from wheat plant infested by Hessian flies. Wilson, Kas. (T. J. Headlee). The larvæ are supposed to prey upon the puparia of the Hessian fly.

32. *Sciara cucumeris* n. sp.

Male. Length 0.8 mm. Black, mesonotum shining, abdomen sometimes fuscous; palpi, halteres and antennæ fuscous, the last about 0.6 as long as the body; coxæ and legs yellowish, the tarsi darker, hind tibia and tarsi subequal. Hypopygium dark, claspers resembling those of *S. sativæ* but with 3 subequal apical spines (Fig. 261). Wings hyaline with dusky veins (Fig. 267). This species was bred from cucumbers, by Mr. E. W. Gabourie, at Savanna, Ill. Feb. 29.

33. *Sciara* sp.

Male. Length 1.2 mm. Head and antennæ fuscous, palpi pale brown; antennæ nearly 3-4 as long as body; thorax reddish, dorsum slightly darker with two oval fuscous marks, one over the base of each wing; abdomen fuscous, hypopygium dark, clasper (Fig. 121). Coxæ and legs yellow, tarsi darker, hind tibia about .10 longer than the tarsus. Wings hyaline, veins infuscated. Costa produced .8 of distance from tip of Rs to M₁. Venation closely resembling Fig. 242 but with slightly longer petiole of the cubitus. Halteres infuscated, pedicel yellow at base. Ithaca, N. Y., August.

A specimen from Wisconsin differs in having the costa less produced.

34. *Sciara neglecta* n. sp.

Male and female. Length 1 to 1.5 mm. Fuscous, including palpi, antennæ, halteres and tarsi. Antennæ of the male nearly 3-4 length of the body. Coxæ and legs except tarsi, yellow;

hind tibia and tarsus subequal. Hypopygium dark, clasper (Fig. 122). Wings hyaline (Fig. 242). Stanford Univ.!, Feb., and Pacific Grove, Cal., (J.M.A.) May.

35. *Sciara nigricans* n. sp. = j

Male and female. Length 2 mm. Shining black, mesonotum highly polished, hypopygium dark, clasper (Fig. 125). Antennæ fuscous, about 3-4 as long as the body in the male, palpi subfuscous. Coxæ and legs pale yellow, tarsi fuscous. Wings grayish hyaline, vein dark, well marked (Fig. 243). Halteres pale yellow. Kingston, R. I. (J.B.); Kas. (Tucker); Ithaca, N. Y. (May-Aug.)

36. *Sciara actiosa* n. sp.

Male and female. Length 1.5 mm. Black, shining, mesonotum highly polished, its longitudinal rows of pale setulæ conspicuous; hypopygium dark, clasper suboval with strong terminal spine (Fig. 260), antennæ fuscous with grayish pile, about 0.6 as long as the body in the male, but only about twice the longest diameter of the eye in length in the female. Palpi and halteres fuscous; coxæ and legs yellowish brown, tarsi darker, hind tarsi about 1-5 shorter than the tibia. Wings hyaline, anterior veins dark brown (Fig. 217). Niagara Falls (M. C. Van Duzee), Oct.; Ithaca, and Freeville, N. Y., (July).

37. *Sciara* sp.

Male. Length 2.2 mm. Head brown, palpi yellow, (antennæ broken off). Thorax dusky yellowish, the mesonotum fuscous, subopaque. Abdomen dusky yellow, posterior margins of the segments more brownish; hypopygium yellowish, clasper (Fig. 126). Coxæ and legs pale yellow, trochanters black below, tarsi broken. Wings hyaline, anterior veins dusky yellow (Fig. 244). Halteres yellow. Ithaca, N. Y.

38. *Sciara dolens* n. sp.

Male. Length 1.2 mm. Black, mesonotum subshining; scape and palpi fuscous, flagellum broken; hypopygium dark, clasper (Fig. 127). Coxæ and legs yellow, trochanters black below, hind tarsus 1-10 longer than the tibia, tarsi infuscated. Wings grayish hyaline, veins dark (Fig. 245). Halteres fuscous with yellow pedicel. Tompkins Co., N. Y., June.

39. *Sciara diluta* n. sp.

Male. Length 1.5 mm. Fuscous, including palpi and antennæ; mesonotum subopaque, antennæ nearly 3-4 length of the body; hypopygium dark, clasper (Fig. 132). Coxæ and legs pale brown, tarsi darker, hind tarsus slightly longer than the tibia. Wings grayish hyaline, veins darker (Fig. 251). Halteres yellowish.

Female. Colored as the male; larger, halteres infuscated. Both sexes from Ithaca, N. Y., July.

Var. a. Male. Similar but more blackish, halteres dark, and teeth of the claspers stronger (Fig. 140). Freeville, N. Y.

40. *Sciara varians* n. sp.

Male and female. Length 2 mm. Fuscous black, including antennæ and palpi; hairs of antennæ, thorax and abdomen light gray; thorax subshining; hypopygium dark, clasper (Fig. 115). Antennæ about 2-3 as long as the body. Coxæ and legs dusky yellow, hind pair more brownish, tarsi fuscous, hind tarsus .10 longer than the tibia. Wings grayish hyaline, anterior veins dark (Fig. 246). Halteres dusky yellowish. Lawrence, Kas.

Var. a. Male. Similar to the above but smaller, R_1 ends more proximad; and tibia and tarsus subequal in length. Halteres yellow. Ithaca, N. Y.

Var. b. Male and female. Similar to typical variety but the costa ends nearer M_1 and veins are heavier. Ithaca, N. Y.

Var. c. Male and female. Similar to the typical variety but R_1 ends nearly opposite the base of the fork of M (Fig. 255). Moscow, Id.

41. *Sciara scita* n. sp.

Male. Length 3 mm. Fuscous black, including palpi, antennæ, halteres and legs; mesonotum subshining; hairs and spines brown, antennæ about 2-3 as long as the body; claspers of hypopygium as figured (Fig. 128); hind tibia slightly longer than the tarsus. Wing brownish hyaline, veins black (Fig. 247). Newport, Oregon! (J.M.A.).

Female. Antennæ shorter, petiole of the cubitus a little shorter, and cell M_1 relatively narrower. Wash.

42. *Sciara fumida* n. sp.

Male and female. Length 2.2 mm. Head and antennæ fuscous, the latter elongate, (apical joints broken), palpi fuscous.

Thorax reddish, mesonotum, scutellum and metanotum fuscous, subopaque; humeri yellow. Abdomen and hypopygium fuscous, clasper (Fig. 129). Coxæ and legs yellowish, tarsi brown, hind tibia 1-8 longer than the tarsus. Wings hyaline, anterior veins brown (Fig. 248). Halteres brownish, pedicel yellowish. Ithaca, N. Y., August.

43. *Sciara trivialis* n. sp.

Male. Length 1.5 mm. Fuscous, including antennæ, palpi and halteres. Antennæ about 3-4 length of the body. Mesonotum subshining; hypopygium dark, clasper (Fig. 130). Coxæ and legs yellow, tarsi darker, hind tarsus .8 as long as the tibia. Wings grayish hyaline, veins dark (Fig. 249). Ithaca, N. Y.; Bronx Park, N. Y.!, (W.B.).

44. *Sciara acuta* n. sp.

Male and female. Length 1.75 mm. Black, head and mesonotum highly polished, the latter with the lines of paler hairs quite distinct, antennæ, palpi and halteres fuscous, pedicel of the last yellowish at base; antennæ over 3-4 length of the body in the male; hypopygium dark, clasper (Fig. 131). Coxæ and legs pale brown to brown, hind coxæ and tarsi darker, hind tibia and tarsi subequal. Wings hyaline, anterior veins brown (Fig. 250). Friday Harbor, Wash.!, and Moscow, Id. (J.M.A.), May; Lawrence, Kas.

45. *Sciara impatiens* n. sp.

Male. Length 1.25 mm. Fuscous, including antennæ which are less than 1-2 as long as the body, intermediate segments being but little longer than broad; palpi yellow. Thorax subopaque; hypopygium dark, clasper (Fig. 137). Coxæ and legs yellow, tarsi darker, hind tarsus slightly shorter than the tibia. Wings grayish hyaline, veins dark, strong (Fig. 252). Halteres fuscous. Bred from larvæ found in earth adhering to the roots of *Impatiens*. Ithaca, N. Y.

46. *Sciara coprophila* Lintner.

Rept. State Ent. X. 394. 1895.

Male. Length 2.5 mm., slightly shorter in dried specimens. Head and thorax black, subshining, abdomen dark brown to

black, antennæ, palpi and hypopygium fuscous, clasper (Fig. 133). Antennæ less than 3-4 length of the body in dried specimens. Coxæ and legs dusky yellow, tarsi darker, hind tibia and tarsi subequal. Wings grayish hyaline, veins dark (Fig. 236). Halteres brown with yellowish petiole.

Female. Colored like the male, hind tarsus slightly shorter than the tibia, antennæ about half the length of the body in dried specimens; lobes of the ovipositor dusky (Fig. 144). Both sexes, Montreal, Canada; Ithaca, N. Y.; Orono, Me. Larvæ in manure. Treesbank, Manitoba (N. Criddle.)

Var. a. Male and female. As above but petiole of the cubitus only .6 as long as the basal section of M, and halteres, coxæ and legs brighter yellow. Ithaca, N. Y.; Black Mts., N. C. (W.B.); Kas., and Col. (Tucker).

On examination of a slide of type material proves my specimens to be this species. Dr. Lintner's specimens were taken in a mushroom cellar at Albany, N. Y.

47. *Sciara caldaria* Lintner.

Rept. State Ent. X. 398. 1895.

Male. Length 2.5 mm. Head, thorax and abdomen black, the mesonotum shining; hypopygium black, in structure like the preceding species; antennæ and palpi fuscous, the intermediate flagellar joints nearly 3 times as long as wide, antenna over 3-4 as long as the body in dried specimens. Coxæ and legs brownish, the hind coxæ and sometimes also hind femora, dark brown; tarsi fuscous; hind tibia and tarsi subequal. Wings grayish hyaline, veins dark. Halteres fuscous.

Female. Similar to the male in coloring, antennæ shorter; terminal lobe of the ovipositor more elongate than in *S. coprophila* "Boise, Idaho." Captured in a green house.

An examination of a slide of the type material does not reveal any structural differences between this and the foregoing species, excepting that the antennæ in this appears to be a trifle longer.

Var. a. Similar to the above, but antennæ distinctly longer than in *S. coprophila* and the anterior wing veins heavier (Fig. 237). Ithaca, N. Y.

48. *Sciara ocellaris* Comstock.

Rept. of Comm. of Agr. 203. 1882.

Male. Length 1.5 mm. Head black, antennæ dark brown, basal joint light yellowish brown; pronotum light yellowish-brown; mesonotum yellowish brown in the center and darker at the edges; scutellum dusky brown; metathorax dark brown, almost black; abdomen with caudal portion of the segments, blackish, cephalic portions yellowish brown; clasper lighter brown. Poisers, with knob blackish, and base light brown. Tibiæ and tarsi dusky brown; femora lighter; coxæ still lighter. "N. Y., D. C." The figure given by the author of the wing shows that this species is closely related to *S. coprophila*.

An examination of the cotype material from the Cornell University collection shows that in structural characters including antennæ and wing venation the species is closely related to *S. coprophila* from which it differs in color characters and in the structure of the clasper which has on the dorsal-mesal margin 2 or 3 strong setæ in addition to the apical setæ (Fig. 263). This species was formerly supposed to cause the ocellate spots on maple leaves which are now attributed to a Cecidomyiid. Specimens from Buffalo, and Lancaster, N. Y., collected by Mr. M. C. Van Duzee do not differ from the types (Fig. 265).

The following descriptions by Say (Complete Writings I, II), Walker (List. Dipt. Brit. Mus. I) and Fitch (Second Rept. 484-487) are too brief and general to permit of a recognition of the species. The dimensions given have all been reduced to the metric system.

S. abbreviata Walker. "Length 2 mm. Body black; abdomen tawny; feelers piceous; thighs tawny; shanks and feet brown; wings colorless; veins pale brown; poisers tawny. Canada; N. J., N. H."

S. atrata Say. "Length less than 5 mm. Entirely deep black, polished, immaculate; wings dusky, iridescent; nervures dark fuscous; poisers black; thorax in a particular light somewhat pruinose; abdomen opaque, with short black hairs; spines of the tibia rather longer than the transverse diameter of the tibia. 'N. W. Terr.' The nervures of the wings agree with those of *S. Thomae*." *S. thomae* has a venation of the type of *S. picea* but R_1 ends about opposite the forking of the media.

S. dimidiata Say. "Female. Length less than 5 mm. Thorax polished; wings fuliginous; costal margin blackish; middle nervure very distinct; poisers blackish; abdomen dull fulvous, with a few blackish hairs on the 3 basal joints, fourth a little darker; tip black; feet piceous black. Louisiana."

S. exigua Say. "Male. Length 1.2 mm. Black; thorax piceous at the anterior angles; poisers whitish at base; feet whitish, dusky at tip. Antennæ fuscous, with dark gray hairs; wings a little dusky, nervures fuscous; poisers elongated whitish, capitulum fuscous; abdomen fuscous, opaque. Female. A little larger with the base of the feet and of the poisers of a darker shade than those of the male. N. W. Terr."

S. exilis Say. "Male. Length .8 mm. Body dusky; antennæ as long as the body; stethidium yellowish white; thorax blackish; wings dusky, apical forked nervure wide, the inferior portion hardly arquated; halteres subclavate, about half as long as the abdomen, a little dusky; abdomen a little hairy; feet pale. Indiana."

S. femorata Say. "Length less than 2.5 mm. Wings hyaline, nervures fuscous; poisers large; coxæ and thighs pale or yellowish white; abdomen dirty yellowish obscure, lateral margin and posterior margins of the segments blackish. Pa."

S. fraterna Say. "Female and male. Length 2.5 mm., male smaller. Deep black, polished; abdomen black-brown, opaque. Antennæ dark fuscous, with dense grayish hair; eyes in contact above the antennæ; thorax polished; wings dusky, pale yellowish at base; poisers with a yellowish scapus and fuscous capitulum; feet dusky towards the tip. N. W. Terr."

S. fuliginosa Fitch. "Length 4.5 mm. Black with blackish brown shanks and pale thighs, their haunches being commonly white. Its wings are semi-transparent and smoky. The 16 cylindrical joints of its antennæ are more widely separated from each other by short intervening pedicles than in *S. mali*. N. Y." "N. J."

S. inconstans Fitch. "Length 2 mm. Black with the thorax smooth and slightly shining, the thighs pale and whitish, and the wings pellucid and glassy with an iridescent violet and red reflection. N. Y."

The species identified with this in entomological literature and reported from Ill., Ky., Me., Neb., N. J., N. Y., O., Ottawa, Pa. and Va., is in all probability a composite; = *S. prolifica* + *S. coprophila* Whether either one is identical with *S. inconstans* is problematical.

S. lurida Walker. (Dipt. Saund. 418). "Div. A, b. Meigen. VI. 305. Black. Abdomen piceous, tawny beneath. Legs tawny; tibiæ and tarsi brown. Wings brown; veins brown, tawny at the base. Halteres tawny. Length 4 mm. U. S."

S. mali Fitch. "Length 3.7 mm to the tips of the wings. Head and thorax black. Abdomen dusky, almost black, with a bright yellow band at each of the sutures. Legs are black as are the antennæ also, though of less deep tint than the head and thorax. Poisers dusky. Wings dull hyaline, tinged with smoky, and are a fourth longer than the abdomen. In the female the antennæ are half the length of the body. N. Y." Larvæ feed on apples following in the trail of the codling moth.

S. perpusilla Walker. "Length 1.5 mm. Body piceous, small and slender; feelers black; legs brown; thighs tawny; wings slightly gray; the costal veins dark brown, the rest paler and more slender; poisers tawny." Canada.

S. polita Say. "Female. Length less than 4 mm. Deep black, thorax and abdomen both highly polished. Body with numerous short hairs which are slightly sericeous; eyes without interval above the antennæ; wings dusky, pale yellowish at base; poisers whitish; feet dusky towards the tip; coxæ and thighs yellowish white. N. W. Terr."

S. punctata Walker. "Length 2.5 mm. Head black; feelers piceous; chest very dark piceous; abdomen dull red with a row of black spots on each side; legs tawny; wings gray; fore border veins dark brown, the rest as usual paler and more slender; poisers tawny. North Amer."

S. robusta Walker. "Length 4 mm. Body black, stout, pubescent; a dark red line along each side; feelers black, robust; legs dark piceous, rather thick; wings black, as are also the veins and the poisers. Canada."

S. rotundipennis Macq. Dipt. Exot. I. 2, 178. 1838. "Female. Length 4.5 to 6 mm. Black, abdomen fuscous testaceous. Wings fuscous, exterior margin, rotund. Antennæ with gray reflection. Cells C and R₁ more brown than the others; basal section of Rs far remote from the base of cell M₁. Carolina."

S. tilicola Loew. Mentioned in Professor Aldrich's catalogue. This is an European species not yet reported from North America.

S. vulgaris Fitch. Length 2.5 to 3 mm. Black with blackish brown legs and pale thighs. Its poisers are whitish and its wings hyaline. The sides of its thorax below the wings are tinged with pale, and the abdomen with brown, rarely pale. N. Y., N. H."

Type and Paratype Specimens of New Species.

The types and paratypes of the new species described in Parts I, II, III, and IV, of the "Fungus Gnats of North America" may be found in the collections noted below. The following abbreviations are used: J.M.A., (Prof. J. M. Aldrich's collection); O.A.J., (My own collection); A.M.N.H., (American Museum of Natural History); B.S.N.H., (Boston Society of Natural History); C.U., (Cornell University). The location of the type is given first, paratypes follow:

Palaeoplatyura aldrichii, JMA; *P. johnsonii*, BSNH.

Ceroplatus militaris, OAJ, BSNH.

Apemon nigriventris, OAJ, CU.

Platyura setiger, OAJ, JMA; *P. minnula*, OAJ, JMA.

P. nigrita, JMA; *P. moesta*, JMA; *P. moerens*, OAJ, JMA; *P. genualis*, OAJ, AMNH; *P. scapularis*, OAJ, JMA.

Macrocera geminata, OAJ, CU; *M. formosa*, var. *indigena*, OAJ, CU.

Monoclona elegantula, OAJ, CU; *M. furcata* OAJ.

Sciophila galbana, OAJ, JMA; var. *germana*, AMNH; var. *socia*, BSNH; *S. nugax*, OAJ, AMNH; *S. habilis*, OAJ; *S. incallida*, OAJ, CU; *S. hebes*, OAJ, JMA; *S. novata*, OAJ, CU; *S. impar*, OAJ, AMNH, JMA; *S. severa*, OAJ; *S. similis*, OAJ.

Paratina recurva, OAJ.

Polylepta obediens, OAJ, AMNH, BSNH; *P. nigellus*, JMA.

Diomonus magnificus, OAJ, CU, BSNH; *D. pulcher*, CU.

Neoempheria macularis, OAJ, BSNH; *N. impatiens*, OAJ, JMA; *N. indulgens*, OAJ, CU, AMNH; *N. illustris*, OAJ, CU.

Mycomyia littoralis, var. *frequens*, OAJ, AMNH, CU; *M. sequax*, OAJ, CU; *M. marginalis*, OAJ; *M. imitans*, OAJ, CU, AMNH; *M. maxima*, OAJ, BSNH; *M. sigma*, AMNH; *M. mendax*, OAJ, JMA, CU; *M. nugatoria*, OAJ, AMNH; *M. recurva*, OAJ, AMNH; var. *chloratica*, AMNH; *M. incompta*, OAJ, CU.

Gnoriste macra, OAJ, AMNH.

Neuratelia silvatica, OAJ; *N. scitula*, BSNH, OAJ; *N. eminens*, JMA; *N. desidiosa*, BSNH.

Leptomorphus ypsilon, OAJ, CU.

Boletina obscura, OAJ, BSNH, CU; *B. cincta*, BSNH, OAJ; *B. melancholica*, OAJ, AMNH; *B. imitator*, JMA; *B. gracilis*, OAJ, AMNH; *B. longicornis*, JMA; *B. notescens*, OAJ, BSNH, JMA; *B. sobria*, OAJ, JMA; *B. delicata*, AMNH; *B. obesula*, OAJ; *B. sedula*, OAJ, JMA; *B. nacta*, OAJ, AMNH.

Leia nigra, OAJ, JMA; *L. plebeja*, OAJ, JMA, AMNH; *L. dryas*, AMNH, OAJ.

Phthinia curta, OAJ.

Coelosia gracilis, OAJ, AMNH; *C. lepida*, AMNH, JMA; *modesta*, JMA, AMNH.

Syntemna rejecta, BSNH; *S. vittata* var. *fasciata*, BSNH; *S. separata*, BSNH.

Megophthalmidia occidentalis, OAJ, JMA.

Anatella silvestris, OAJ.

Docosia nigella, OAJ; *D. nitida*, OAJ, JMA.

Trichonta cincta, BSNH; *T. triangularis*, OAJ, CU; *T. bellula*, BSNH; *T. diffissa*, OAJ, BSNH; *T. patens*, OAJ, CU.

Cordyla manca, OAJ; *C. scita*, OAJ, *C. volucris*, OAJ, CU; *C. recens*, OAJ, CU; *C. neglecta*, OAJ.

Brachypeza bisignata, var. *divergens*, OAJ, BSNH.

Rhymosia serripes, OAJ; *R. inflata*, OAJ, CU; *R. imitator*, OAJ, AMNH, CU; *R. akeleyi*, AMNH, BSNH; *R. captiosa*, OAJ, BSNH; *R. diffissa*, OAJ, JMA.

Allodia bulbosa, OAJ, BSNH, CU; *A. actuaria*, OAJ, BSNH; *A. falcata*, OAJ, AMNH, JMA; *A. elata*, OAJ, BSNH; *A. bella*, CU; *A. beata*, OAJ, CU; *A. callida*, JMA, OAJ; *A. delita*, JMA, AMNH.

Phronia producta, BSNH; *P. insulsa*, OAJ; *P. venusta*, OAJ, JMA; *P. difficilis*, OAJ, CU; *P. similis*, OAJ.

Telmaphilus nebulosa, OAJ, BSNH.

Exechia perspicua, OAJ, AMNH; *E. nugax*, OAJ; *E. nexa*, OAJ; *E. abrupta*, OAJ; *E. canalicula*, OAJ, CU, JMA; *E. cincinnata*, OAJ, BSNH, CU; *E. quadrata*, OAJ, AMNH, BSNH, CU; *E. satiata*, OAJ, CU; *E. nugatoria*, OAJ, AMNH; *E. nativa*, OAJ, CU; *E. palmata*, OAJ, AMNH, JMA, CU; *E. assidua*, OAJ, JMA; *E. auxiliaria*, OAJ, AMNH; *E. bellula*, OAJ, BSNH; *E. bella*, OAJ, AMNH; *E. captiva*,

OAJ, BSNH; *E. absoluta*, OAJ, JMA, BSNH; *E. capillata*, OAJ, AMNH; *E. obediens*, JMA, AMNH; *E. attrita*, OAJ, AMNH, CU; *E. repanda*, OAJ, BSNH, CU; *E. absurda*, OAJ; *E. casta*, OAJ, AMNH.

Dynatosoma nigrina, OAJ; *D. placida*, OAJ.

Opistholoba ocellata, OAJ, CU.

Mycothera paradoxa, OAJ; *M. mitis*, AMNH; *M. recta*, OAJ; *M. var. praenubila*, OAJ, AMNH, JMA; *M. impellans*, OAJ, BSNH, JMA.

Mycetophila jucunda, OAJ; *M. perita*, OAJ, CU, AMNH; *M. fastosa*, OAJ; *M. falcata*, OAJ, JMA; *M. lenis*, OAJ; *M. anomala*, OAJ, AMNH; *M. foecunda*, OAJ, AMNH, CU, JMA; *M. imitator*, OAJ, CU, AMNH; *M. perlonga*, OAJ; *M. pectita*, OAJ, JMA; *M. lassata*, CU; *M. lenta*, OAJ, AMNH; *M. fatua*, OAJ, JMA; *M. edura*, OAJ, AMNH; *M. exusta*, OAJ, JMA, CU; *M. jugata*, OAJ; *M. extenta*, OAJ, CU; *M. edentula*, OAJ, BSNH; *M. socia*, OAJ, CU.

Sciara. All types in my collection. Paratypes as follows: *S. dives*, JMA; *S. futilis*, AMNH; *S. imitans*, JMA; *S. hastata*, CU; *S. jucunda*, CU; *S. mutua*, CU; *S. parilis*, E. S. Tucker; *S. nigricans*, CU, E. S. Tucker; *S. varians*, JMA; *S. trivialis*, AMNH.

Zygoneura flavicoxa, OAJ.

In the body of the work the type locality is indicated by an exclamation point.

Plate.

Details of hypopygia. Dorsal aspect of left half unless otherwise noted. Abbreviations used the same as in Part III. Figs. 24 to 29, *Phronia* species; figs. 31 to 57 *Exechia* species. 24, *P. producta* x 170. 25, *insulsa*, x 75. 26, *venusta*, x 60. 27, *difficilis*, x 60. 28, *similis*, x 300. 29, *rustica*, var. a, x 60. 30, *Telmaphilus nebulosa*, x 85. 31, *E. perspicua*, x 60. 32, *umbratica*, x 35. 33, *nugax*, x 60. 34, *nexa*, x 60. 35, *abrupta*, x 35. 36, *canalicula*, x 35. 37, *cinnamata*, x 35. 38, *quadrata*, x 35. 39, *satiata*, x 35. 40, ditto, va of apex of median margin. 41, *nugatoria*, x 35. 42, *nativa*, x 35. 43, *interrupta*, va of apex of median margin; after Lundström. 44, *palmata*, x 60 va. 45, *fungorum* va, after Lundström. 46, *assidua*, x 45. 47, *auxiliaria*, x 60. 48, *bellula*, va, x 60. 49, *bella*, x 35. 50, *captiva*, x 35, right hand members. 51, *absoluta*, x 60, b¹ is la of apex of b. 52, *capillata*, x 60, latero-dorsal aspect. 53, *obediens*, x 35. 54, *attrita*, x 35, b¹ la of b. 55, *repanda*, x 60. 56, *absurda*, x 60. 57, *casta*, x 60. 58, *Dynatosoma nigrina*, la of forceps, x 35. 59, *D. fulvida*, la of forceps, x 35. 60, *Opistholoba ocellata*, la of forceps, x 30. 61, *Epicypta trinotata*, x 35.

Plate.

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Plate.

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ADDENDA.

Sciara hartii n. sp.

Mr. Chas. A. Hart recently records (Forbes, 15th Rept. State Ent. Ill., pp. 95-98) a species of *Sciara* seriously injurious to cucumbers in forcing houses. At my request Mr. Hart kindly sent me a number of specimens taken at Morrison, Ill. These proved to differ from any of the species noted on the previous pages. This species somewhat resembles *S. cucumeris* but is more closely related to *S. fatigans* from which it differs in having a wider wing, broader cell R_1 , R_s less curved, ending a little more distad. The hypopygium differs in having apical hairs on the clasper more dense but apparently lacking the 2 smaller apical setæ. Alcoholic specimens are dusky yellow, but in life they are probably more or less fuscous. Antennæ of the male about $\frac{3}{4}$ the length of the body. Length (in alcohol) about 1.5 mm. One male and many female specimens. This species will find a place in the key with *S. fatigans* from which it may be distinguished by its venation.

Quite recently a new genus belonging to the *Mycetophilinae* has been described by Landrock (Wien. Ent. Zeit. XXX. 161) represented by an European species. It will fall in with *Neuratelia* in the dichotomic table in Genera Insectorum (Fasc. 93). It may be distinguished from that genus by the strongly produced costa and the absence of one of the anal veins.

The generic name *Meunieria* proposed by me (Genera Insectorum, Fasc. 93, p. 87.) must be changed. It is already twice preoccupied.

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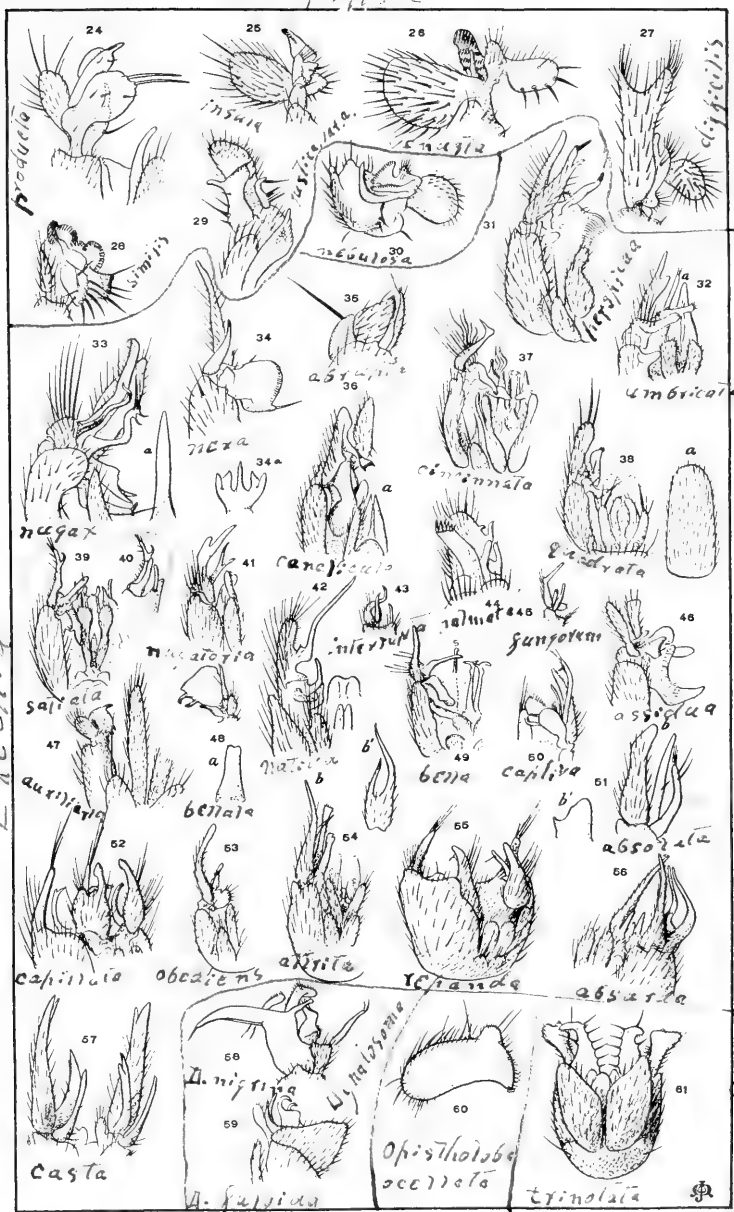
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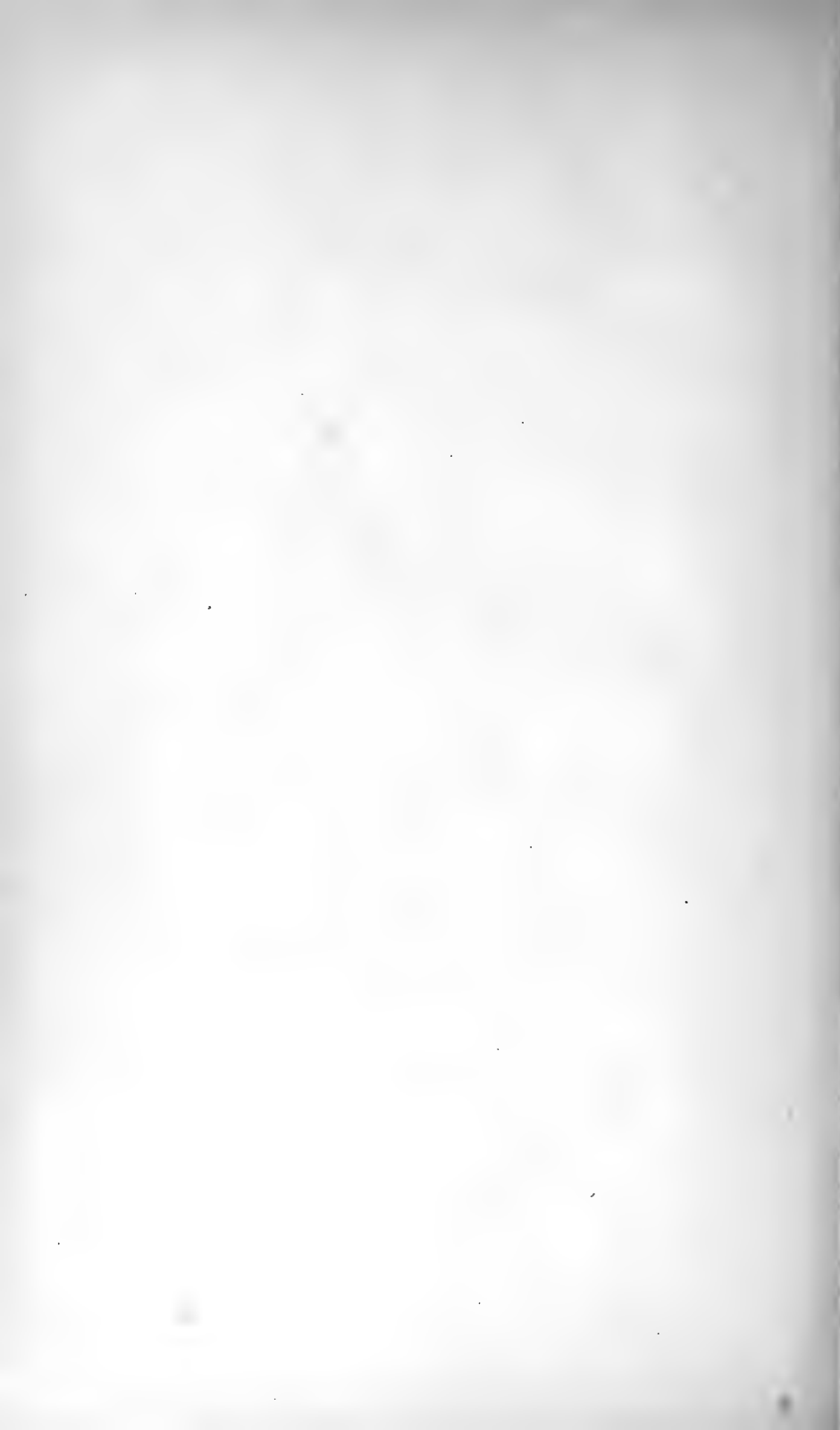
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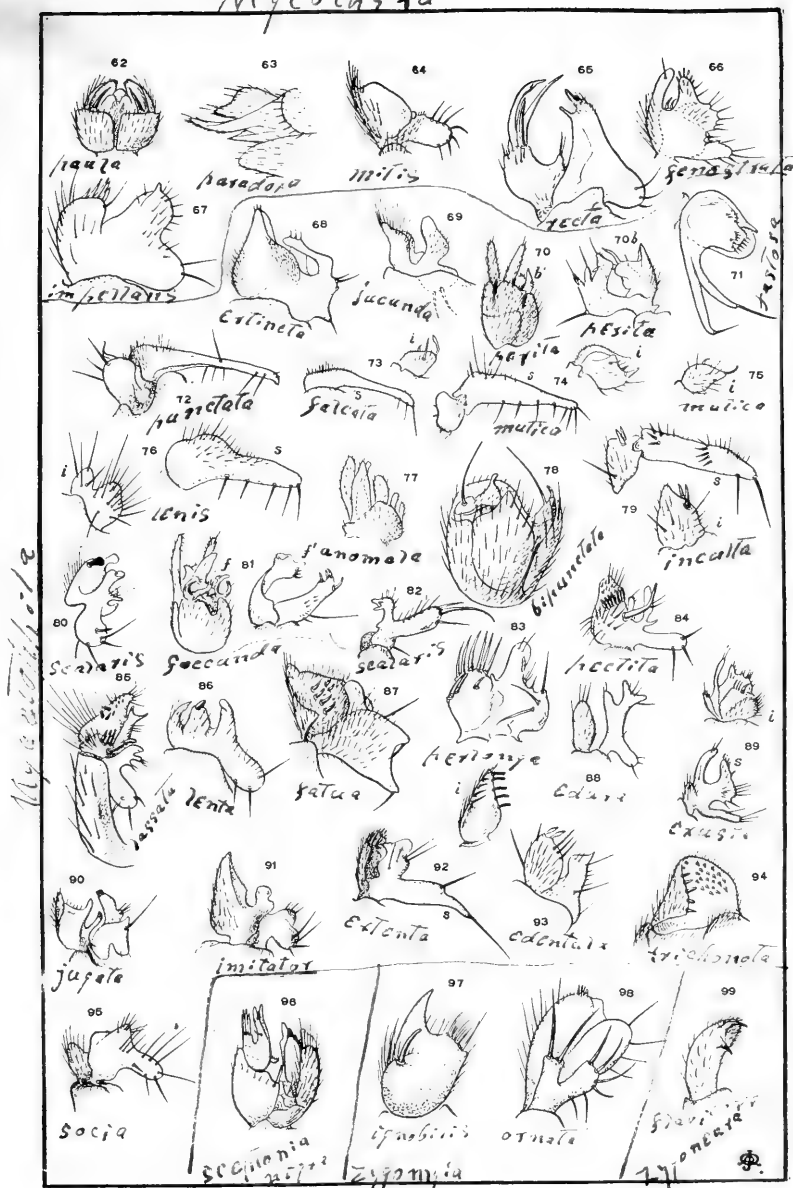
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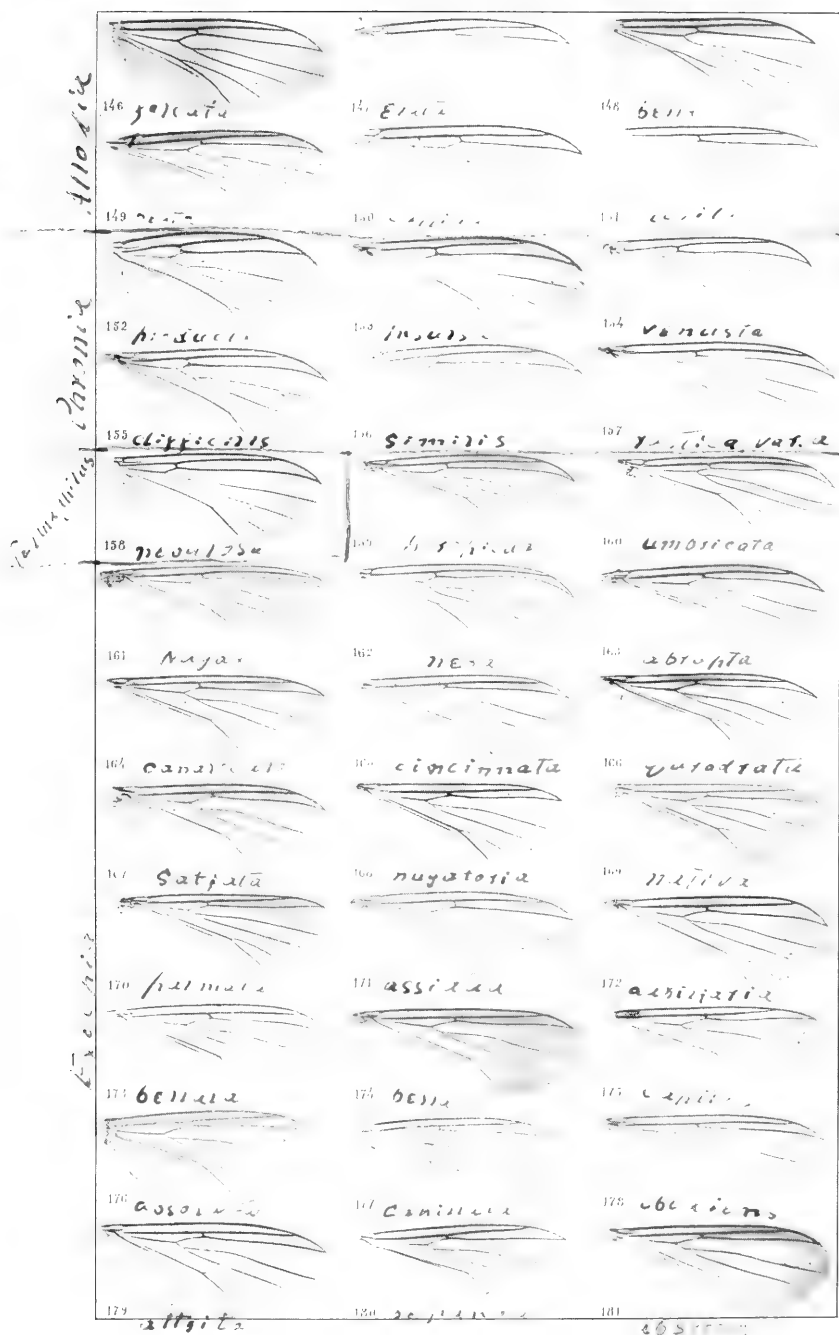
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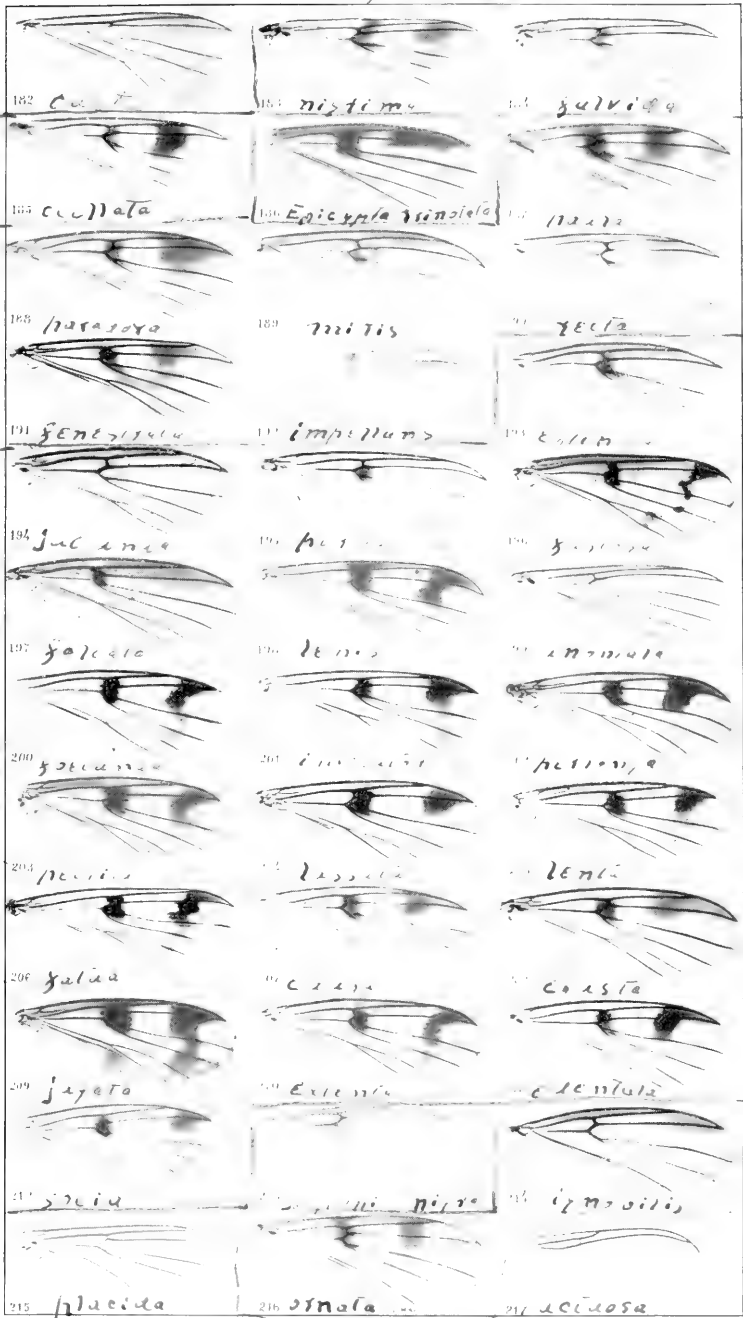






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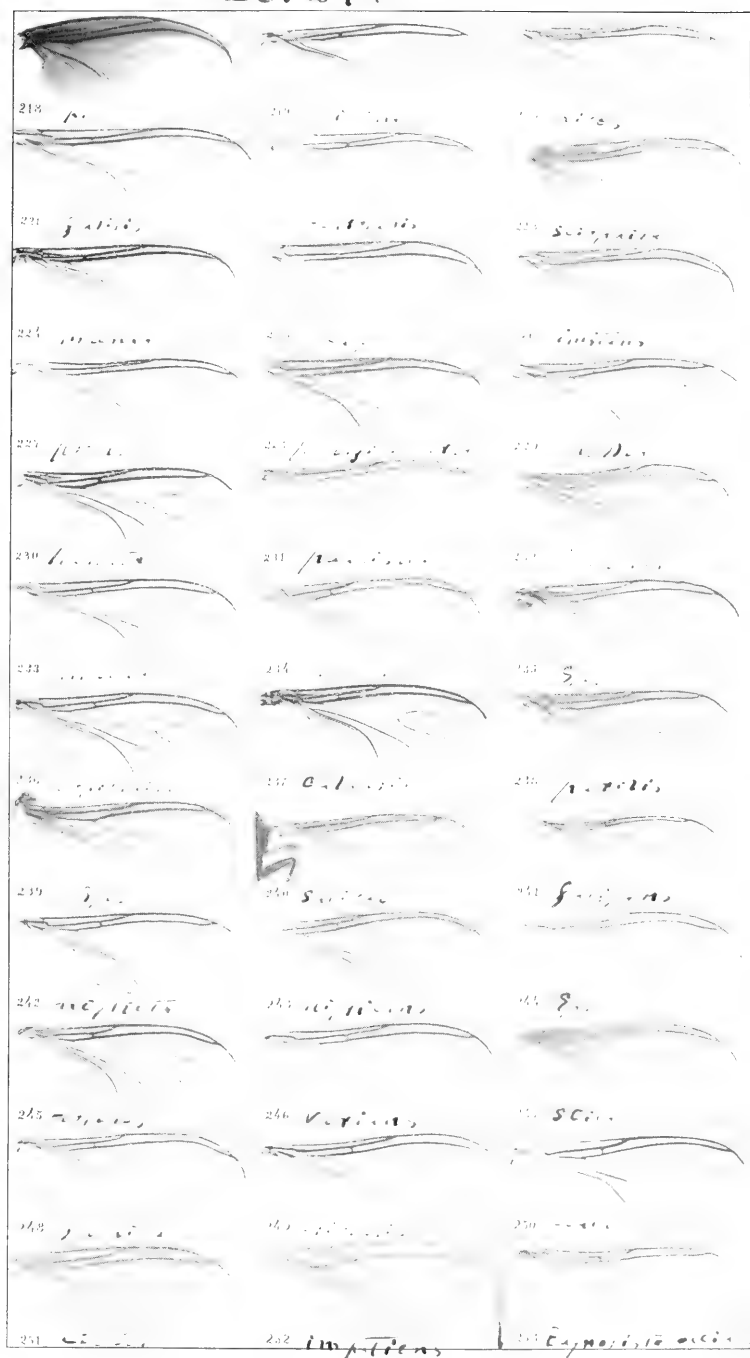




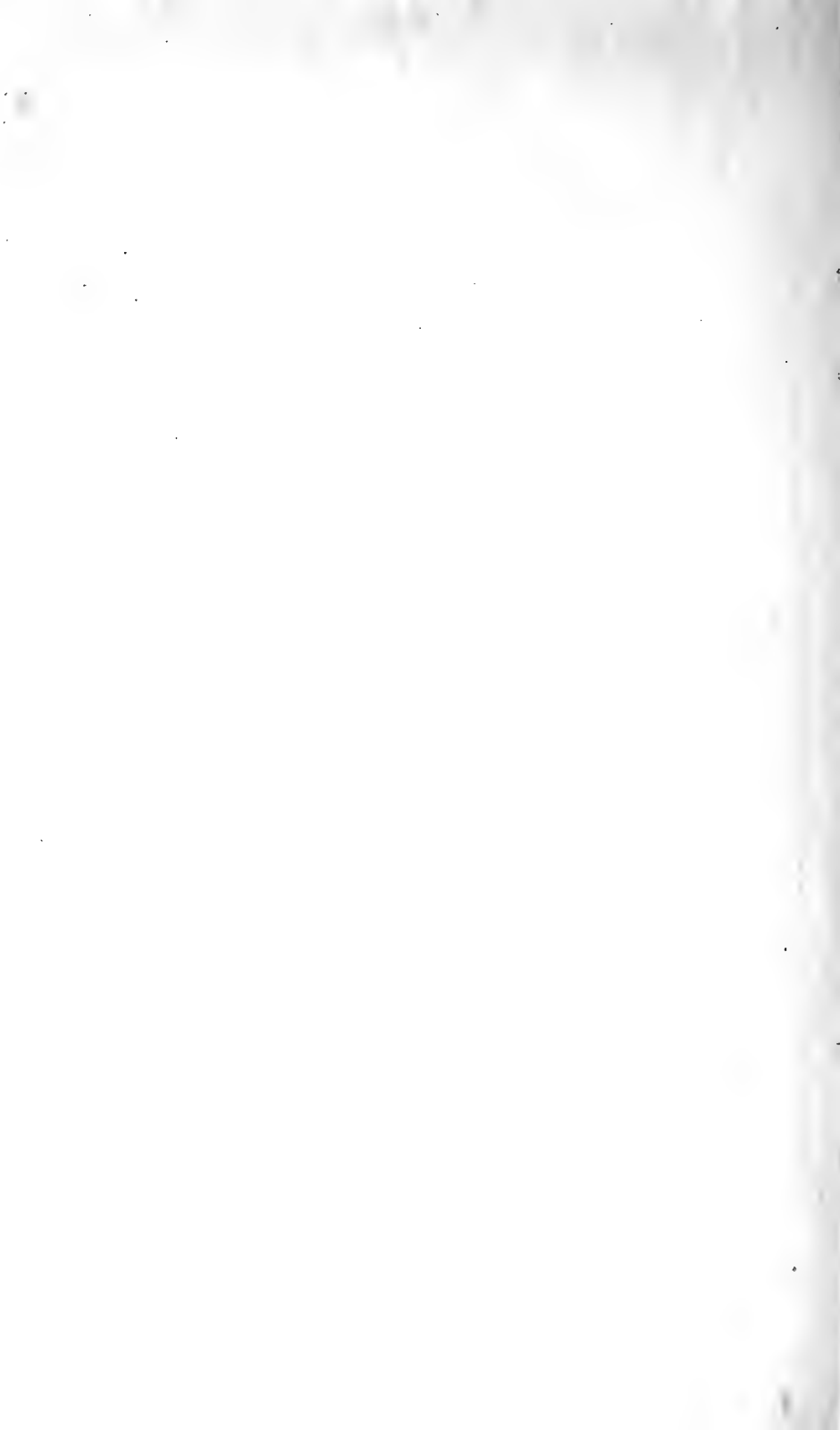
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Sciara



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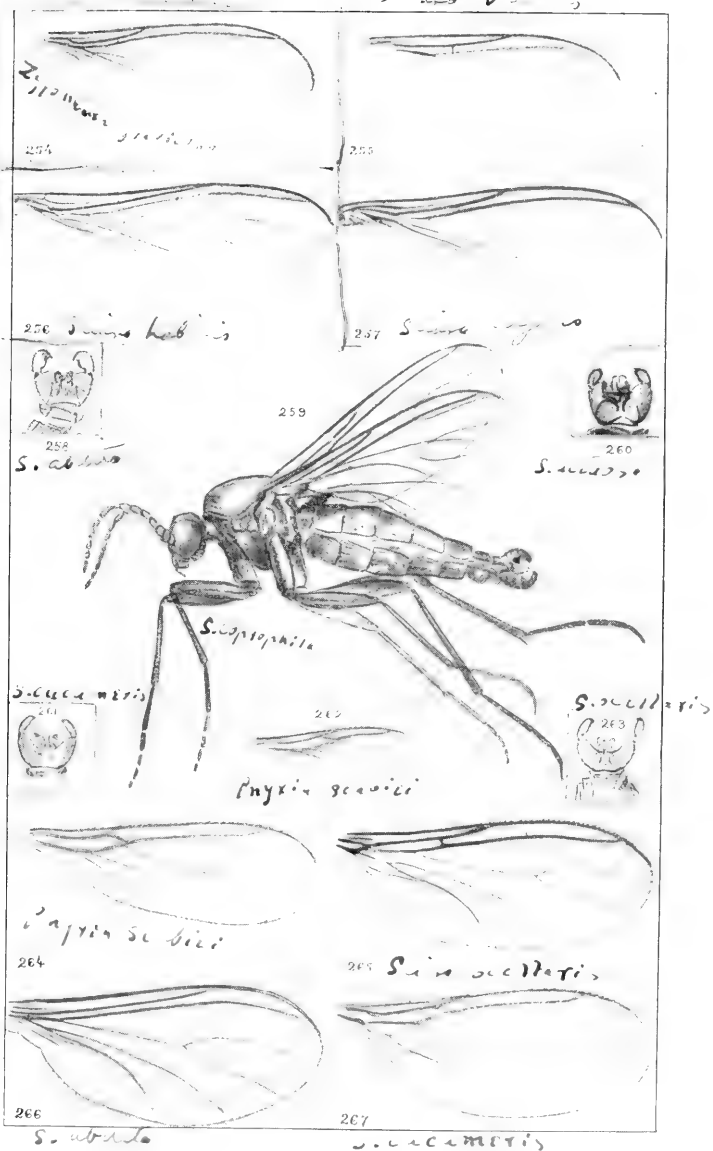


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